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Bus Service Delivery System

Final Report

 The Massachusetts Bay
Transportation Authority



July 1993

COMSIS

in Association with

Howard/Stein-Hudson Associates, Inc.
John T. Doolittle & Associates, Inc.

Q33/261

EXECUTIVE SUMMARY

Introduction

This report completes Phase I of a 2-phase examination of the Massachusetts Bay Transportation Authority (MBTA) fixed route motor bus services relative to the method by which the MBTA delivers motor bus services.

The MBTA in March 1993 engaged COMSIS Corporation, with J. T. Doolittle & Associates, Inc. and Howard/Stein-Hudson Associates, Inc., to perform Phase I of the study. Phase II is envisioned to include the planning and implementation of competitive contracting, at the MBTA's option. The consultant team performed this study in close conjunction with MBTA staff from all functional areas. MBTA staff assistance was integral to the effort.

Background

The Commonwealth and the MBTA face severe financial difficulties at present and for the anticipated future. Region-wide recession, coupled with demographic factors, have caused declining ridership, and despite a 1991 fare increase, revenues are insufficient to maintain existing service levels. MBTA's operating costs for bus operations total approximately \$196 million annually, of which \$183 million are for services operated by MBTA employees. The balance is for the Suburban Bus, The Ride, and similar (contracted) services.

The MBTA is having difficulty addressing the dual trends of rising costs and stabilizing revenues. According to the MBTA, additional revenues are not available and additional cost reduction options are limited.

Additional Revenues are Not Available

- Additional subsidies from the Commonwealth and local governments is not considered possible.
- Additional fare revenues are not possible in the short term, following the MBTA policy regarding fare increases and environmental constraints regarding air quality.

Additional Cost Reduction Options Limited

- Reductions in administrative and support functions have been implemented; further reductions on a large scale are not considered desirable or feasible. Further reductions are unlikely to produce the magnitude of savings needed.
- Reducing service is generally not desirable and is difficult to achieve, given the public's desire for more services, not fewer.

In essence, the MBTA has exhausted all its major options except one: the reduction of the actual unit cost of providing the bus service, including bus operations and maintenance. These areas comprise the vast majority of bus costs - approximately 80% - and must be addressed if the MBTA is to realize any significant savings from its bus operations *without reducing service levels or service quality*.

Study Purpose and Methodology

Phase I of the study was on a broad scale and contained 6 major elements:

- Examine bus services to determine if a competitive approach to selecting the operator for bus routes promises to reduce MBTA costs,
- Identify candidate services for implementation of a competitive approach,
- Identify barriers to a competitive approach to supplying bus services,
- Examine other issues related to competitive procurement,
- Examine the MBTA's Subsidized Private Carrier Service and Suburban Bus Program, and
- Recommend an approach to competitive contracting.

Each of these items is discussed in the following sections.

Competitive Contracting Defined

Competitive contracting may be defined as buying bus service, just as a public agency purchases other goods and services from private, non-profit, and other public organizations.

The public agency defines the parameters - such as routes, schedules, days of operation, vehicles to be used, fare structure, and a myriad of other details - of what it wishes to purchase. Interested parties submit proposals that are evaluated against established criteria, including cost. The public agency then makes a two-tier decision: [1] Should a contract be awarded or should the service be retained in-house, and [2] If a contract is to be awarded, what contractor best meets the needs of the MBTA. If a contract is awarded, the MBTA must manage its contractor(s) to achieve the goals and objectives of the service and the contract.

Investigation of the MBTA's bus routes revealed that none have significant potential to be operated without any public subsidy. This study was an effort to determine the viability of competitively contracted MBTA bus service. Consequently, abandonment of service was not addressed in this study.

Examination of Existing MBTA Motor Bus Services

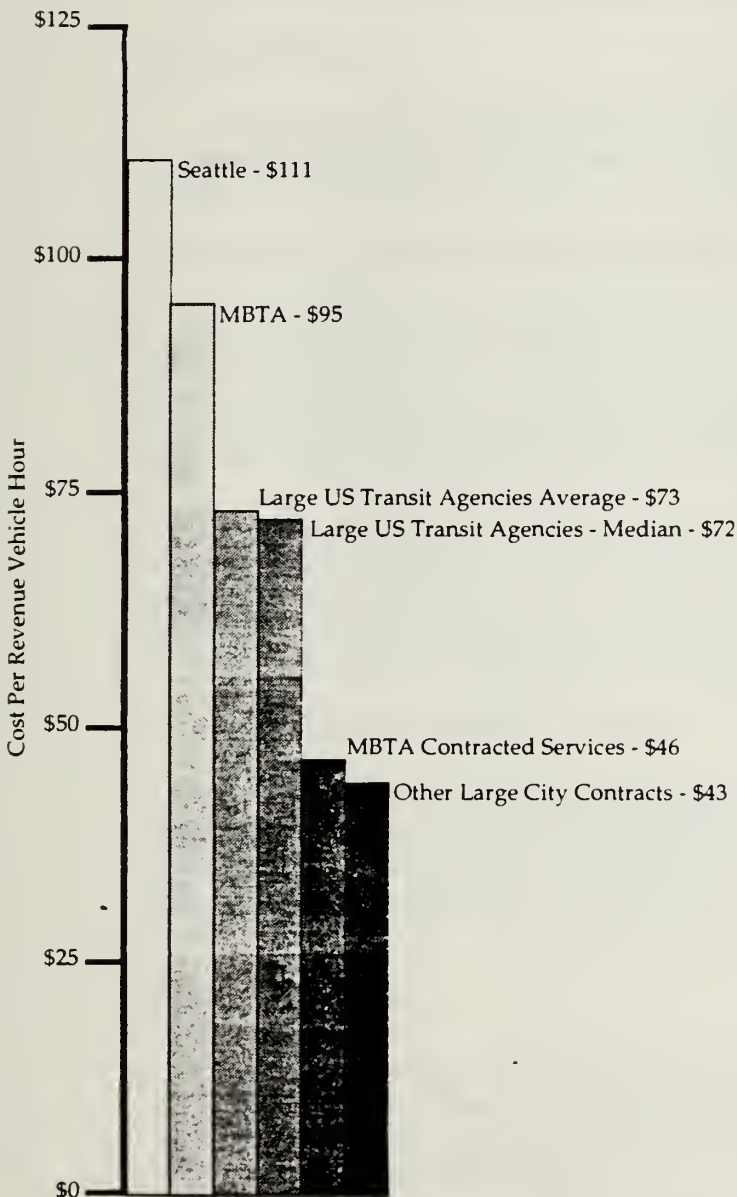
Potential for Competitive Approach - MBTA Bus Cost Assessment

The first step in this project was to assess the relative potential of competitive contracting as a strategy to reduce MBTA bus costs. An examination of existing data from MBTA, federal, and other sources was performed, resulting in the following. Exhibit A portrays these figures.

Comparison to Similar Transit Systems

A comparison of MBTA motor bus costs with those of the largest U.S. bus systems was performed using published data from the Federal Transit Administration. The 30 largest U.S. transit agencies were examined, of which 26 have bus operations. FY 1991 data, the most recent available, and a unit-based comparison using a standardized federal reporting methodology was used.

Exhibit A
Comparative Motor Bus Unit Operating Costs



See text for Sources - Rounded to nearest dollar

The results of this comparison are striking: In 1991 the MBTA had an average operating cost per revenue hour of \$94.89 for all its motor bus operations. Only Seattle, Washington experienced a higher cost per hour. When compared to this group of large transit systems, the MBTA cost per revenue hour was 30 percent higher than the \$72.68 average for all 26 systems. A comparison using revenue miles yields similar results: MBTA is the 5th most expensive system at \$7.59 per revenue mile, over 25% higher than the average.

The magnitude of these unit cost differentials is important when applied, even on a theoretical basis, to the overall MBTA bus operation. Theoretically if the MBTA could achieve bus system-wide costs matching its sister systems, an additional \$45.7 million would be available for other uses.

Comparison to Sample National Contracted Systems

Other U.S. transit agencies have implemented a competitive approach, in whole or part, regarding their bus services. A sample of this financial data was obtained and compared to MBTA costs.

The hourly costs of these contracts vary between \$19.00 and \$64.22. The cost per mile varies between \$1.67 and \$3.50. These rates are all substantially lower than those paid by the sponsoring public transit agency for service it provides itself. All are lower than the MBTA's

Related Issues

Various issues related to competitive procurement arise. These are summarized below. Overall, no significant impediment to competitive contracting was revealed.

Attrition and the Rate of Implementation

In the case of existing MBTA-operated services, MBTA is recommended to implement competitive procurement at or near the rate of attrition of MBTA employees. Current attrition projections indicate that services constituting between 20 and 40 peak period buses may be contracted semi-annually.

Implementation via attrition provides immediate economic savings to the MBTA, is sensitive to employees, provides a realistic schedule to achieve contract service implementation with minimum operational difficulties.

Any new services may be implemented using the competitive approach without delay.

MBTA Control

The MBTA should continue to manage all aspects of the service other than daily operational management and maintenance functions. Routes, schedules, fares, etc. should remain under public control at all times.

Supply of Capital Assets - Rolling Stock, Garages

The MBTA may transfer buses from its fleets, via nominal lease, to contractors for use in MBTA-sponsored services. The MBTA should make available to contractors its new and rehabilitated vehicles from its fleet, all other factors considered. This approach avoids unnecessary expenditures and duplication of resources. Future increments of competitive services may call upon the contractor to supply some vehicles, in concert with the MBTA's overall fleet needs.

Any MBTA garages, other facilities, and equipment which now or in the future become excess to the MBTA should be offered for lease to the contractor at nominal cost. Garages no longer needed by the MBTA are to be closed, utilized by contractors, utilized for other purposes by the MBTA, or disposed of. In any case, an increment of fixed costs may be saved by closing a garage that no longer has significant utility. Up to 3 garages may be closed in the next 3-5 years.

Contract Term and Payment Method

Contract terms of 3 years, with 2 optional 1 year extensions are recommended. This span allows recovery of the start-up costs of both the MBTA and the contractors. This also avoids unnecessary administrative efforts. Contractors are recommended to be compensated based upon the cost per unit of service (e.g., revenue hour or revenue mile) of service produced, net of farebox revenues.

Risk Management

Based on national experience, there are no undue risks in contracting if proper planning and management is present. The MBTA should utilize strong contract language and an active monitoring program to assure that contractors deliver the specified services, including insurance and other risk management strategies.

- Few routes perform well, as measured by a high operating ratio or low subsidy. There were only a handful of routes that have farebox recovery ratios over 80%.
- Poor performing routes are essentially distributed evenly throughout the system.
- Overall operating ratios are low: only two route groupings had an operating ratio over 35%.

Likely Candidate Services for Competitive Procurement

Applications of 9 criteria were used to evaluate MBTA routes as candidates for competitive procurement. The first application was on a broad basis to each of the route groupings to identify candidate sets of bus services with the following characteristics:

- Financial and operating characteristics are at the extreme ends of the performance spectrums,
- Large enough to offer a significant expectation of savings,
- Small enough to insure active competition among proposers, and
- Varied, to present MBTA with a range of options.

The second application of the criteria was applied to each specific grouping resulting from the first tier. At this point, the criteria were used to assess each specific group of services for:

- Economic Criteria
 - Short term savings in variable costs are possible
 - Fixed costs can be reduced over a longer period
- Operational Criteria
 - Services are separate or separable from MBTA bus services
 - Services operate in a distinct area
 - Seamless services are achievable
 - Risks to service quality are minimal
- Administrative Criteria
 - Minimize impact on existing MBTA employees
 - Be manageable by the MBTA
 - Encourage interest by a number of competitors

The results of the examination and application of the criteria to the various route groups are to eliminate consideration of services based on economic criteria alone, and to the development of an overall cost reduction strategy that focuses on garages, certain rail stations, and express services. Additional examination indicates that the services operated from the Lynn, Quincy and Albany Street garages, 300 and 400 series express routes, and routes serving the Salem, Quincy Center, Lynn, and Haymarket rail stations offer the best opportunity for substantial cost savings, consistent with all other criteria. Exhibit B shows the locations of MBTA garages and service areas in relation to rail lines.

Barriers to a Competitive Contracting Approach

Various documents were reviewed with respect to the competitive procurement of bus services, including labor agreements and related documents. The MBTA enabling act prohibits the MBTA from bargaining collectively or entering a collective bargaining agreement with respect to its right to contract for services on either a permanent or temporary basis.

Related Issues

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Risk Management

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MBTA Management of Contract Services

The MBTA is recommended to regard contracted services as its own. Management of contracted services, as well as the existing Subsidized Private Carrier Service and Suburban Bus Program should be handled in the MBTA Operations Division.

Schedule and Phasing

The first increment of contracted services may be implemented as early as spring 1994. Implementation prior to this date for existing MBTA services is not recommended for financial and operational reasons. Timing coincident with the implementation of Blue Line "shadow service" is recommended, if possible. Subsequent increments may be implemented in accordance with attrition and other parameters, and be timed with the MBTA's quarterly service re-alignment/pick dates. New services may be implemented via the competitive approach immediately.

Overall Implementation Issues

- Contract size will be based on operational and economic criteria. Packages are recommended to be small enough to encourage multiple proposers, yet large enough to offer proper economies of scale.
- A Request for Proposal (RFP) procurement method is recommended.
- Contracts should be staggered over time to ease operational and administrative efforts during initial start-up and subsequent re-competitions.
- Contractors will be required to meet rigorous employee selection and training criteria to assure safety and security.

Private Carrier and Suburban Bus Programs Examination

As part of this project, the services offered under the MBTA's Subsidized Private Carrier Service and Suburban Bus Program were examined for improvements and structural changes. For each program, existing data and the findings and recommendations of the MBTA Advisory Board's report "Private Carrier Bus Services in the MBTA District" were considered and further examined. Each program is briefly described and the recommendations from this study summarized.

Subsidized Private Carrier Service

This long-standing service involves 6 carriers, 12 buses, and a small number of routes on the fringe of the MBTA service area. Approximately 6,200 hours and 77,000 miles of service are provided annually with a total subsidy of \$1,038,440. The MBTA fare structure is not honored. These services are largely those which used to operate under complete private control without subsidy, but are now subsidized to retain the routes. Overall, the program is successful.

Suburban Bus Program

This program operates as a partnership between the MBTA and the towns in which the services are operated, with 11 towns participating and both the towns and the Commonwealth providing subsidies. The contract is between the individual town and the carrier. 45,000 hours and 618,000 miles of service are provided annually, with a total subsidy of approximately \$534,000.

MBTA subsidy is provided to participating towns at the rate of 65% of the net cost of service. The towns determine the type and extent of the service and negotiate the fare with the carrier (MBTA fare structure not honored). The services are diverse and flexible.

Recommendations for the Subsidized Private Carrier Service and Suburban Bus Program

- Retain identity and basic structure of each program.
- Implement and maintain a performance monitoring program; Market the services in a more thorough and comprehensive manner; Consider the programs proto-types to extend low-cost public transit services.
- Assign program responsibility to the MBTA Operations Division.
- Establish minimum performance standards and assist towns and carriers in meeting them.
- MBTA guidance, standards, and assistance to the local service sponsors are suggested in order to continually strengthen the program.
- As present contracts expire, examine services for their most appropriate niche - present program, consider competitive services, or other.
- MBTA should supply new, modern fare collection equipment in the Subsidized Private Carrier Service to improve performance monitoring, and potentially allow use of MBTA passes and tokens on selected routes.

Overall, both the Subsidized Private Carrier Service and the Suburban Bus Program are successful demonstrations of services that are operated within market forces, and serve specific markets successfully. They demonstrate a means by which the MBTA can extend public transit services to areas and populations normally regarded as unreachable for operational, financial, or other reasons.

Summary of Findings and Recommendations

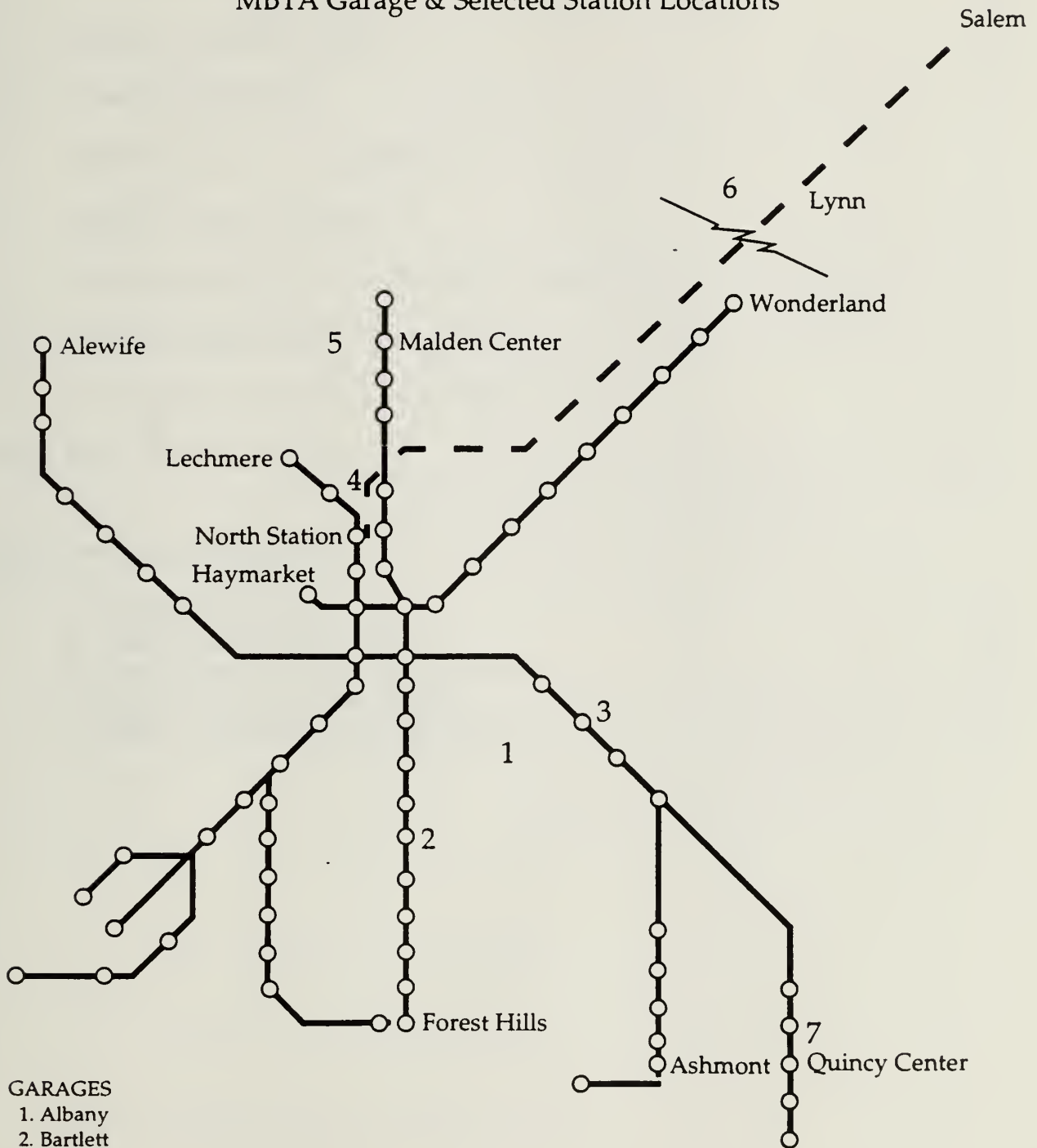
The study reaches the conclusion that the MBTA can achieve significant savings through competitive contracting of bus services. Such an approach is clearly within the MBTA's management rights, per Commonwealth law.

A competitive approach is recommended as a means of conserving scarce financial resources. The implementation of a competitive approach may commence as early as spring 1994, and should progress in increments comparable to the attrition of MBTA personnel. Other major factors include:

- Coincident implementation with the Blue Line shadow service will offer an additional initial competitive increment.
- The risks involved in a competitive contracting program are not unlike those for direct operation of services and are manageable.
- Blocks of service may be competed following a phased plan that concentrates services on a geographic basis and allows the closing of up to 3 MBTA garages, saving fixed as well as variable costs.
- The separable services that are identified in this report as the most viable for competitive contracting represent approximately 25% of MBTA bus service.

- MBTA assets should be used to the maximum extent feasible for economy and service protection reasons.

Exhibit B MBTA Garage & Selected Station Locations



GARAGES

1. Albany
2. Bartlett
3. Cabot
4. Charlestown & Somerville (Bennett St.)
5. Fellsway (Salem St.)
6. Lynn
7. Quincy

COMTIS TEAM

July 1993

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SECTION I

INTRODUCTION AND BACKGROUND

1. Overview

Higher government expenses, greater pressures for new services, and a limited budget have created a fiscal dilemma for the Commonwealth of Massachusetts. Public officials have decided to seek ways to reduce the cost of providing service rather than to reduce the level of service provided. The public interest in restraining the cost of public services in Massachusetts is heightened by the concurrent need for additional public services.

One means of achieving cost reductions of existing public services is to introduce competition in the provision of government services. In general, competitive bidding promotes cost savings and efficiency because price is a major factor in selecting a contractor. Short-run savings result when a contractor's price is below the public provider's avoidable costs. In the longer-term, additional cost control is realized by scaling back "fixed" costs in capital and administrative overhead, and making the public agency itself more competitive.

There are several reasons why contractors have lower operating costs than public agencies. Contractors tend to offer market-based compensation packages, have less restrictive work rules, and have more efficient operating and capital structures. These differences tend to relate to an economy of scale and to an organizational framework that is more responsive to change than large governmental organizations. The competitive approach is consistent with long standing federal, private enterprises and competitive contracting initiatives, as well as with the current initiatives of the Weld Administration.

The Massachusetts Bay Transportation Authority (MBTA) motor bus services are a potential area for the application of competitive contracting to reduce costs while preserving the level and quality of services provided. The MBTA faces difficult choices. Traditionally, the MBTA could look to increased public subsidies or increased fare revenues as a means of meeting higher expenses; or the MBTA could reduce service and, when possible, undertake technological improvements as a means to reduce costs. However, these options are currently considered undesirable or unavailable because of the following:

- Increasing subsidies and the taxes or borrowing which finance them are not considered feasible in the near future.
- The prospect for increased fare revenues are marginal given clean air issues, public opinion and MBTA policy.
- Reducing service is generally not desirable, and is difficult to achieve, given the public desire for more services, not fewer.

In essence, MBTA has no choice but to pursue lower unit and overall costs for bus services. This goal has been pursued through reductions in management and administrative staffing; however, these costs are a relatively small fraction of the cost of bus services. Production costs of bus services, explicitly the direct inputs to providing bus services, constitute approximately 80 percent of costs and must be closely examined for economics. Competitive procurement allows market forces to determine their costs, often resulting in tangible, immediate financial savings with no reductions in service quantity or quality.

2. Private Carriers in Massachusetts Transit Programs

Private sector participation in transit services is deeply rooted in Massachusetts in general and the Boston area in particular. Nearly all of the public transit services in other regions of the State are provided by private contractors. In addition, a large volume of interurban and interstate services is provided by private transit firms with no public subsidy.

Several recent activities in the Boston area have aimed to further develop public/private partnership in transit. The MBTA Board of Directors adopted a competitive contracting policy in 1986, designed to increase private sector participation in transit in the region. In 1992, the MBTA Advisory Board produced a report that recommended proposals for contracting selected MBTA bus services.

In addition, the MBTA has established several programs using private carriers. They are the Suburban Bus Program, the Subsidized Private Carrier Service, and the Interdistrict Bus Program (sponsored by the Executive Office of Transportation and Construction). The MBTA also has a longstanding practice of contracting for commuter rail operations, specialized transit services (The Ride), and commuter boat services.

3. Objectives of this Project

As a part of the general effort to restrain the cost of public services, the MBTA in 1993 commissioned this project to analyze the viability of and develop recommendations for the introduction of competitive contracting at the MBTA. This competitive procurement project is divided into two phases, each with its own set of objectives. This report comprises Phase I, the principal objective of which is to develop recommendations for competitively contracting elements of the MBTA's motor bus service. The main objective of Phase II will be to follow-up on Phase I by providing technical guidance for implementing the recommendations of this report.

An objective of the Phase I recommendations is to achieve direct economies of operation by reducing operating costs. Other objectives are to maintain existing service levels, and to maintain or improve service quality. In addition, the service operated by private carriers has to be manageable, such that these operations must be effectively intergratable with MBTA service.

Neither the MBTA nor the Consultant Team has set a goal regarding the amount of MBTA service for competitive bidding. The Consultant will recommend an amount of service to be contracted based upon financial, operational, and administrative factors.

The study aims at maintaining "seamless service," as a means of assessing service quality. This term expresses the objective of offering riders system uniformity and continuity between MBTA operated service and contractual service. Riders should not be able to distinguish between an MBTA operated bus or a contractor operated bus in terms of vehicle identification, obtaining route and schedule information, fares, transferring, etc.

An additional objective of Phase I is to assess the Suburban Bus Program and the Subsidized Private Carrier Service. In assessing these programs, the Consultant Team considered but decided not to recommend combining these programs with this proposed effort to bid regular MBTA service. However, the Team did recommended short and mid-term actions for increasing the effectiveness and efficiency of these programs.

This report includes the following:

Section I	Introduction and Background
Section II	Assessing Cost Savings
Section III	Selecting Routes for Contracting
Section IV	Supplying Capital Equipment
Section V	Assuring Service Quality and Controlling Adverse Impacts
Section VI	Assessing Existing MBTA Contractual Service
Section VII	Implementing a Competitive Procurement Process
Section VIII	Phase I Recommendations

4. Methodology

The methodology followed in this study generally follows the traditional planning model of establishing study goals, analyzing the problem, assessing alternatives, and developing a framework for implementation. The Consultant Team worked closely with MBTA management to define the objectives of the study, quantify cost information, and qualitatively assess alternatives. The Consultant Team did not work from preconceived assumptions on what service should be contracted or how to carry out the process. Instead, the study primarily depended upon numerical calculations and policy decisions were assessed in light of economic impacts.

SECTION II

ASSESSING COST SAVINGS

The Case for Contracting

The Consultant Team compared MBTA bus operating cost to costs experienced by other large transit properties, the costs of contractual service at other selected properties, as well as the cost of the MBTA's Subsidized Private Carrier Service. While none of these comparisons pinpoint a tight range of cost savings, they clearly indicate that the MBTA costs are significantly above that of its sister's public agency, and that local private sector costs are far below that of the MBTA. This indicates that substantial savings are possible, although the savings cannot, by their nature, be precisely forecast until bids are received.

Comparisons with Other Transit Systems

Exhibits II-1, II-2, and II-3 compare the costs of the MBTA bus services with the costs of public transit systems in other parts of the country. This financial information is derived from a Federal Transit Administration (FTA) report on the thirty largest transit systems in the United States. The report is based upon 1991 FTA Section 15 data, the national standardized data base. Because 4 of the top 30 transit systems do not operate or sponsor bus service, the MBTA is compared to the remaining 26 systems. For 1991, the MBTA had an average operating cost per revenue hour of \$94.89 for all its motor bus operations. Only Seattle, Washington (METRO) experienced a higher cost per hour. When compared to this peer group, the MBTA cost per hour was 30 percent higher than the \$72.68 average for all 26 systems.

The MBTA is also compared to these transit agencies on the basis of cost per revenue mile. At an average operating cost of \$7.59 per revenue mile of service, the MBTA ranks fifth and 25 percent above the peer group average of \$6.05. Operating characteristics reflected in average system speed are believed to account for this. Clearly, MBTA's operating costs are high by comparison to similar systems. The magnitude of these cost differences is large when applied to the MBTA's \$183 million operating budget for bus services. If the MBTA were able to meet the average cost/revenue rate of other systems cited in the FTA Section 15 Report, \$45 million of savings could be realized.

Contracting Experiences of Other Transit Properties

Exhibit II-4, "Example Operating Costs for Contracted Service," shows costs experienced by 10 transit properties, for their contracted bus service, and a price range provided by one

Exhibit II - 1: Largest U.S. Transit Agencies - Bus Services Ranked by Operating Cost, 1991 Data

TRANSIT AGENCY*	COST PER REVENUE HOUR	** RANK(H)	COST PER REVENUE MILE	*** RANK(M)
Metro (Seattle)	100.83	1	5.93	12
MBTA (Boston)	94.89	2	7.59	5
NYCTA (New York)	92.11	3	11.40	2
SCCTD (San Jose)	89.23	4	6.38	9
NYCDOT (New York)	87.23	5	8.44	4
WMATA (DC)	81.15	6	7.11	7
D-DOT (Detroit)	80.98	7	7.18	6
SCRTD (LA)	79.95	8	6.50	8
Muni (San Francisco)	79.88	9	8.55	3
RTA (Cleveland)	77.75	10	5.11	16
ACTransit (Alam.-Contra)	74.46	11	5.75	14
DART (Dallas)	71.96	12	4.81	19
OCTA (Orange, CA)	71.81	13	5.58	15
MTA (Baltimore)	71.44	14	5.98	11
MTC (Minneapolis)	71.18	15	5.07	17
Metro-North (NY)	70.12	16	11.49	1
RTD (Denver)	67.70	17	4.43	22
MDTA (Miami)	63.97	18	4.90	18
PAT (Pittsburgh)	63.61	19	4.55	20
CTA (Chicago)	62.51	20	6.22	10
Metro (Houston)	62.36	21	4.44	21
SEPTA (Philadelphia)	60.36	22	5.87	13
Tri-Met (Portland)	55.70	23	4.25	23
MARTA (Atlanta)	54.87	24	4.18	24
NJ Transit	52.31	25	3.10	25
BART (San Francisco)	51.36	26	2.54	26

Average = \$72.68 Average = \$6.05
Median = \$71.81 Median = \$5.98

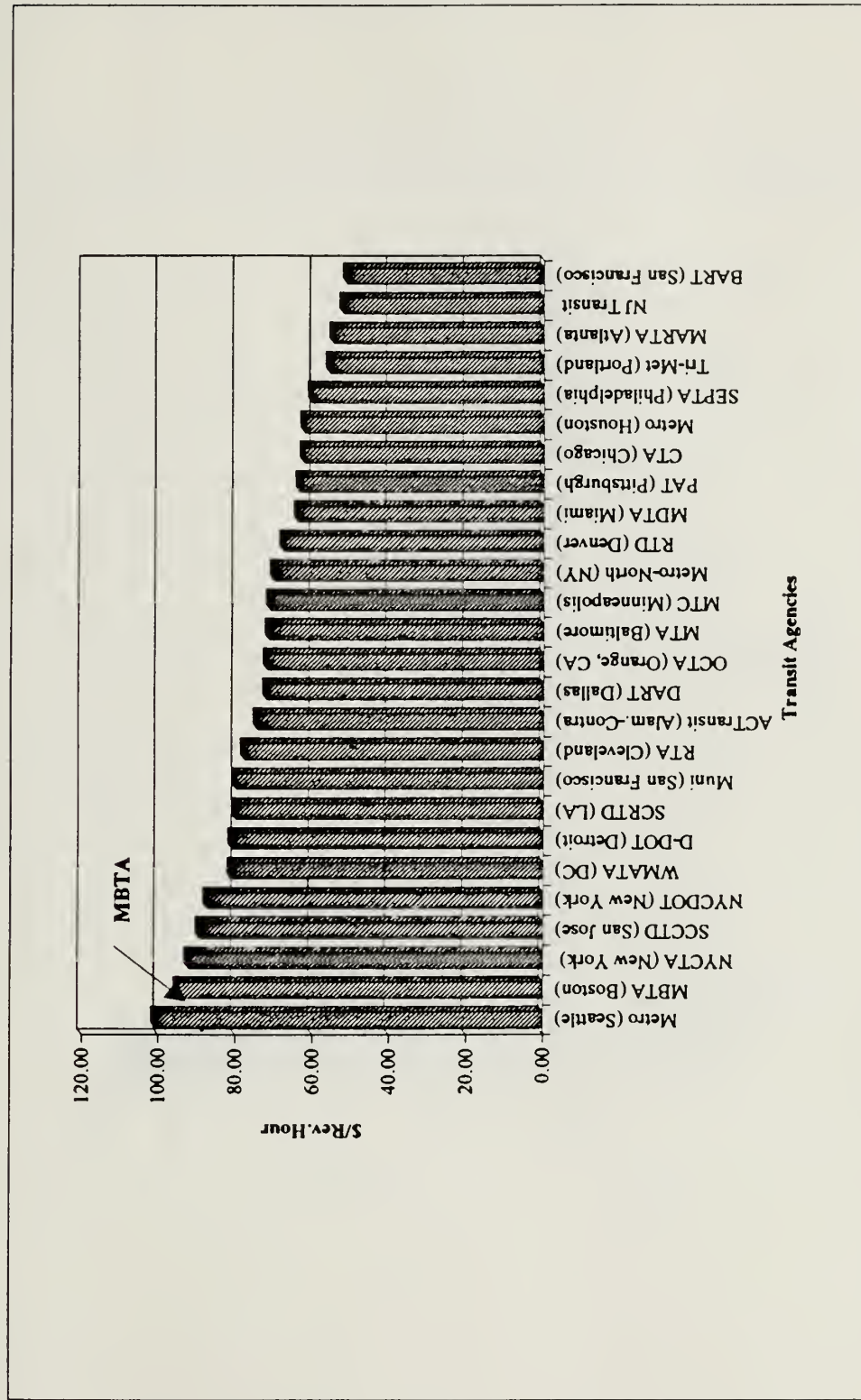
* Metra, LIRR, PATH WSDOT are not included because no motor bus services provided.

** RANK(H) is ranking by operating cost per revenue hour.

***RANK(M) is ranking by operating cost per revenue mile.

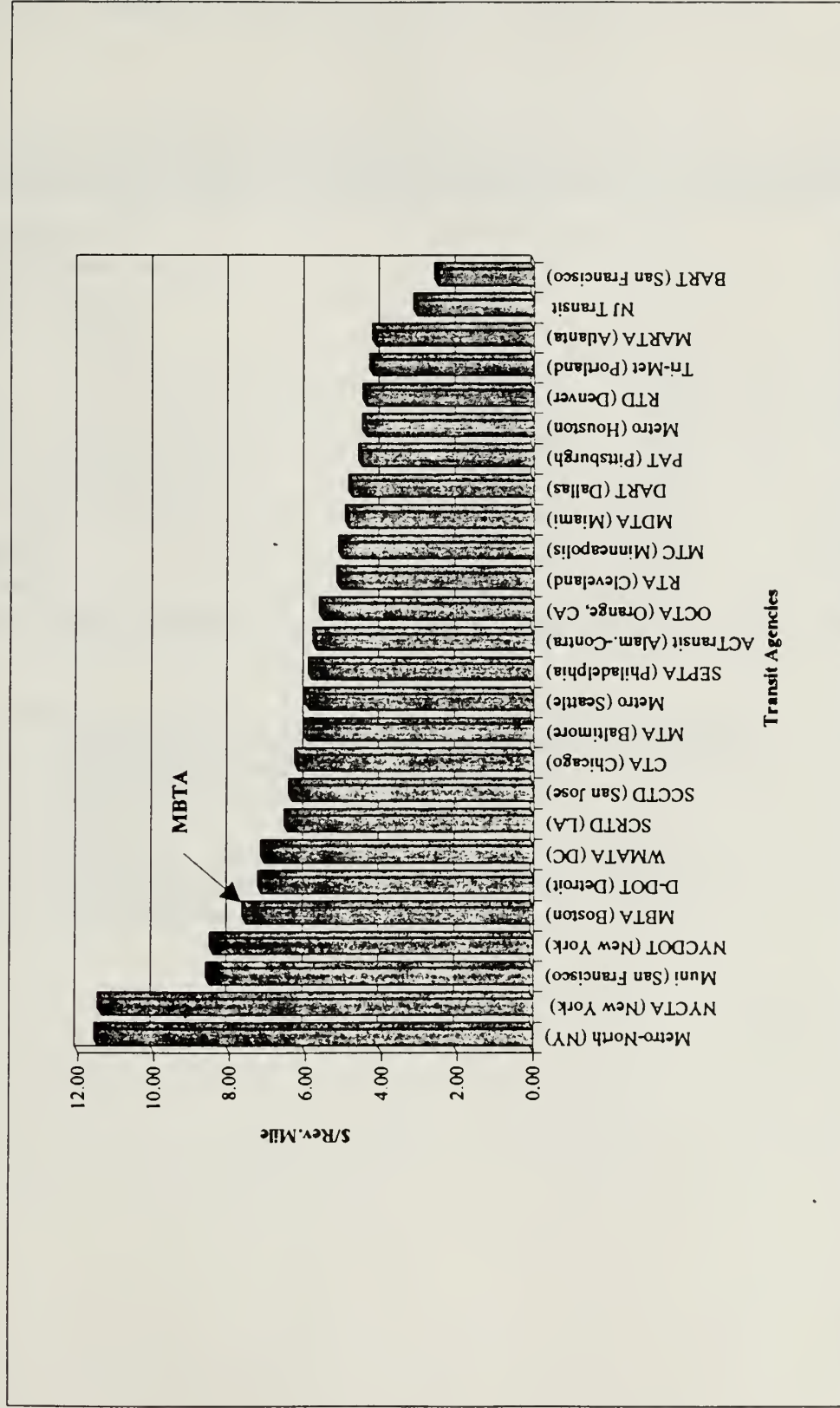
Source: Transit Profiles: The Thirty Largest Agencies, for the 1991 Section Report Year. Federal Transit Administration, USD
[Includes all directly operated and purchased (< 100 vehicles) motor bus services]

**Exhibit II - 2: Bus Services Operating Cost Per Revenue Hour
by Largest U.S. Transit Agencies (1991 Data)**



Source: Transit Profiles: The Thirty Largest Agencies, for the 1991 Section Report Year. Federal Transit Administration, USD
[Includes all directly operated and purchased (<100 vehicles) motor bus services]

**Exhibit II - 3: Bus Services Operating Cost Per Revenue Mile
by Largest U.S. Transit Agencies (1991 Data)**



Source: Transit Profiles: The Thirty Largest Agencies, for the 1991 Section Report Year. Federal Transit Administration, USDOT, October, 1992.
[Includes all directly operated and purchased (<100 vehicles) motor bus services]

Exhibit II - 4: Example Operating Costs for Contracted Service

Transit System		Cost/Rev. Hr.	Cost/Rev. Mi.
Cobb County (Atlanta, GA)	(1)	\$29.89-\$47.58	n/a
Dallas Area Rapid Transit (Dallas, TX)	(2)	\$33.05	\$1.67
Denver RTD (Denver, CO)	(3)	\$32.42	n/a
Fairfax Connector (Virginia)		\$57.50	\$3.50
Las Vegas		\$46.00	n/a
Maryland MTA	(4)	n/a	\$3.40
MBTA (Private Carrier Program)		n/a	\$3.46
Metro North (New York, NY)		\$19.00	n/a
Montgomery County (Maryland)		\$35.83	\$2.83
New Jersey Transit		\$46.26	\$3.32
PACE (Chicago, IL)	(3),(5)	\$64.22	n/a
ATE (Nationwide Private Contractor)	(6)	\$45.00-\$60.00	n/a

Footnotes

- (1) Range reflects differences between local and express service at beginning and end of 5 yr. contract; includes some fixed costs
- (2) Based on total miles and hours operated
- (3) FY '91
- (4) Based on total miles operated, includes a large amount of capital costs
- (5) Includes administrative costs
- (6) Range reflects assumptions for off-peak service

national contractor. Because the FTA does not require individual reporting on contractual service and because transit properties use varying methods of accounting, these data should be viewed only as suggestive rather than predictive.

The hourly cost on Exhibit II-4 varies between \$19.00 and \$64.22. The cost per mile varies between \$1.67 and \$3.50. The transit properties in this table include Washington, New York, and Chicago, areas where labor market costs are similar to those found in Boston.

The important point from this table is that all of these costs are below what the MBTA pays to operate service. The highest per hour cost on this table (Chicago at \$64.22) is still a third less than the hourly operating costs of the MBTA.

Contracting at the MBTA

There is ample precedent for contracted bus operations at the MBTA, since the MBTA runs contract services under 4 distinct programs today. First, subsidies are provided under the Subsidized Private Carrier Service for a number of routes which were once provided by private carriers. Second, the MBTA contracts with various towns to provide private carrier services for town-wide services under the Suburban Bus Program. Third, private carriers are contracted to run various bus services from communities outside the MBTA district under the Interdistrict Program. These bus services are subsidized directly by the Executive Office of Transportation and Construction and do not affect the overall MBTA operating budget. Finally, private carriers run a variety of special needs transit services under "The Ride" Program. This operation is run out of the Office of Transportation Access.

Perhaps an even more compelling argument demonstrating the substantial amount of potential savings comes from the Subsidized Private Carrier Service. The MBTA Advisory Board conducted a study of the Subsidized Private Carrier Service and the Suburban Bus Program in 1992, and made several recommendations for improved management of these two programs. At the same time, this study noted that gross costs per service mile for routes operated by carriers in the two programs were significantly lower than MBTA costs for similar routes, although ridership typically was much lower, and subsidies per passenger were similar to the per passenger subsidy for many MBTA routes.

Exhibit II-5, "Private Carrier and MBTA Route Comparisons" compares the Private Carrier routes to MBTA routes with similar service characteristics. This Exhibit is derived from the MBTA Advisory Board 1992 report on "Private Carrier Bus Service in the MBTA District." It compares five private carrier routes contracted under the Private Carrier Program to groupings of 18 similar MBTA routes. The lowest cost MBTA route was considerably more expensive than the highest cost Private Carrier route. On a cost per mile basis, the contractors cost 60 percent less than MBTA directly operated routes.

Exhibit II - 5: Private Carrier and MBTA Route Comparisons Under Similar Conditions

Type of Route/#	Route Name	Gross Cost/Service Mile	Passengers/Service Mile	Subsidy/Passenger
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Private	Michaud: Salem - Peabody	\$3.25	1.06	\$1.99
MBTA Operated				
97	Malden - Wellington	\$8.93	3.37	\$1.97
236	Quincy Center - South Shore Plaza	\$8.82	1.34	\$5.79
435	Lynn - Danvers	\$5.86	1.40	\$3.48
458/468	Lynn - Lakeshore Park	\$6.68	2.10	\$2.72
Average Cost/Mile (MBTA):		\$7.57		

Savings of 57%

Private	Andre: Hull - Hingham	\$2.38	0.90	\$1.87
Private	Hudson: Canton - Mattapan	\$2.71	0.60	\$3.14
MBTA Operated				
33	Dedham Line - Mattapan	\$6.84	3.99	\$1.37
56	Waltham Highlands - Newton Cor.	\$10.72	2.71	\$3.62
217	Ashmont - Wollaston Beach	\$8.19	2.14	\$3.22
245	Mattapan - Quincy Center	\$5.70	2.05	\$2.35
411	Malden - Revere Beach	\$5.60	2.49	\$1.89
429	Lynn - Lakeshore Park	\$6.29	2.83	\$1.74
Average Cost/Mile (MBTA):		\$7.22		

Savings of 65%

Private	Winthrop: Rapid Transit	\$4.84	2.86	\$0.95
MBTA Operated				
11	City Point - Downtown	\$9.55	6.83	\$1.15
31	Mattapan - Forest Hills	\$8.67	6.16	\$1.15
44	Franklin Park - Ruggles	\$7.15	9.29	\$0.54
89	Clarendon Hill - Sullivan	\$16.02	10.50	\$1.26
Average Cost/Mile (MBTA):		\$10.35		

Savings of 53%

Private	Hudson: Fulton Street	\$4.11	0.74	\$4.20
MBTA Operated				
3	Marine Industrial Park - Chinatown	\$13.75	4.49	\$2.50
48	Jamaica Plain Loop	\$8.15	3.54	\$1.90
121	Wood Island - Maverick	\$13.00	13.66	\$0.67
212	North Quincy - Quincy Center	\$10.26	3.04	\$2.69
Average Cost/Mile (MBTA):		\$11.29		

Savings of 64%

Average Savings: 60%

Note: Avg. Cost/Mile (SAVED) = Avg. Cost/Mile (MBTA) - Avg. Cost/Mile (Private carrier)

% Savings = (Avg Cost/Mile (SAVED))/(Avg Cost/Mile (MBTA))*100

Derived from: MBTA Advisory Board Service Committee Report, "Private Carrier Bus

Service in the MBTA District", August 1992.

The above comparisons indicate potential for considerable saving through the use of competitively procured service and indicate a strong imbalance between the cost efficiency of MBTA-operated services and those subject to both different organizational parameters (other public transit agencies) and market forces (competitively procured services).

SECTION III

SELECTING ROUTES FOR CONTRACTING

Selection of routes is a key element in the success of the competitive procurement process. The MBTA must select a combination that best meets its goals of financial savings, maintenance of service quality, and manageability. Integral to the MBTA's goals, contractors must view the route packages as manageable, involving a reasonable degree of risk, and likely to produce a profit. Otherwise, prospective contractors will not bid on the service. If the route packages are flawed, the best job of marketing and managing the service are unlikely to bring success.

With this in mind, the Consultant Team identified route groupings from which packages of contracted routes may be developed. The steps to selecting and evaluating groupings of routes were:

- Specifying purposes of selecting route groups
- Identifying route groupings
- Developing and applying cost models
- Applying evaluation criteria
- Making recommendations

By following this approach, the Consultant Team grouped all of the MBTA routes in a way that their group and individual attributes became apparent. The groups include all routes that apply and appear in any number of groups. The purpose of this process is to identify a limited number of groups from which route bid packages may be developed by individually assessing each route. Detailed cost information on each route will be found in the Appendix to this report.

Purpose of Route Selection

The purpose of developing route groups was to identify routes with similar characteristics that would then lead to the selection of those routes most likely to meet the objectives of the program. These objectives are to save financial resources, to maintain service quality, and to be manageable for the MBTA to implement and administer. Meeting these objectives meant developing route groups small enough to attract a large number of contractors and to be manageable for the MBTA to implement. These groups must also be large enough to create sufficient savings to make the competitive procurement process worthwhile.

Identifying Route Groups

As a first step in developing packages, the Consultant Team identified route groups based on economic characteristics, operational characteristics, size, and geographic distinction. Routes that represent both ends of the financial and operational performance spectrum were examined. This meant grouping routes by costs, subsidy (costs minus revenues), and operating ratios (fare box revenue divided by cost). It also meant looking at routes by service type and geographic

area of service. The groups that were developed along these bases are express services, garages, and feeder services into outlying rail stations.

Exhibit III-1, "Summary of Candidate Route Groups," indicates the 10 route groups assessed for competitive bidding. To the right of the route groups are 7 columns providing the following information:

- *Number of routes* - refers to the total number of individual routes as defined by the MBTA Operations Planning Department. The actual routes are listed in the Appendix.
- *Peak buses* - cites the total number of weekday buses in service between 6 a.m. and 9 a.m. This column does not reflect buses operating during other periods; however, services during other time periods are reflected in the columns referencing financial data.
- *Garages* - identifies the number of garages from which buses originate according to weekday A.M. peak vehicle assignments.
- *Stations* - refers to the number of rail stations served by one or more routes in that group during the A.M. peak period.
- *Operating expenses* - total operating expenses as defined in the consultant cost model. All non-capital motor bus operating expenses are included in this model.
- *Operating subsidy* - is the difference between operating expenses and revenue.
- *Operating ratios* - refers to the percentage revenue divided by operating expenses.

The size of the various groups either was determined by the grouping itself, such as service associated with specific garages or rail stations, or was arbitrarily defined by the Consultant Team. Groups based upon high end finance data were limited to about 200 peak hour buses. Because of the far greater numbers of routes associated with groups based upon the low end of financial data, these groups were limited to approximately 100 peak period buses. Groups are not mutually exclusive, many routes are in more than one group. The following is a description of each of the route groupings based largely on the information found in Exhibit III-1.

Routes with High Operating Expenses

The premise for distinguishing routes with the highest operating expenses is that they offer the highest potential for cost reduction in the different cost environment of private sector operation. This group of 17 routes and 201 buses has a total estimated operating expense of \$57.9 million and a subsidy estimated at \$42.1 million. The overall

Exhibit III - 1: Summary of Candidate Route Groups

Optional Route Sets	Number of Routes	Peak Buses	Garages	Stations	Operating Expense	Operating Subsidy	Operating Ratio
					<i>in millions of dollars</i>		
High Costs							
High Operating Expense	17	201	6	10	57.9	42.1	27.3%
High Operating Subsidy	19	199	6	9	60.5	46.2	25.5%
High Operating Ratio	28	200	7	14	43.0	27.6	35.9%
Low Costs							
Low Operating Expense	45	99	8	20	17.4	14.0	19.6%
Low Operating Subsidy	42	101	8	18	16.5	12.8	22.6%
Low Operating Ratio	39	100	7	19	27.8	24.2	12.9%
Express Services							
300 Express Services	10	77	3	1	9.8	5.7	42.0%
400 Express Services	7	41	1	1	10.4	8.1	21.9%
Garages							
Albany	15	85	1	5	18.0	12.4	31.2%
Bartlett	27	109	1	6	34.5	26.4	23.4%
Cabot	24	141	1	11	38.0	27.2	28.5%
Charlestown	14	74	1	4	15.1	11.3	25.0%
Fellsway	19	67	1	5	17.3	14.1	18.3%
Lynn	26	71	1	5	17.9	13.9	22.4%
Quincy	19	57	1	5	15.5	13.0	15.5%
Somerville	18	89	1	5	25.6	20.3	20.8%
Stations							
Alewife	6	20	1	1	5.3	4.5	14.8%
Andrew	4	10	1	1	3.0	2.2	
Ashmont	6	16	2	1	5.6	4.6	
Beachmont	1	2	1	1	0.7	0.6	17.3%
Central Square	3	21	2	1	2.0	1.6	21.6%
Chinatown	1	2	1	1	0.2	0.1	18.0%
Copley	3	13	1	1	4.1	3.1	24.5%
Davis	1	2	1	1	0.9	0.8	15.6%
Downtown	2	13	2	1	2.4	1.8	24.5%
Dudley	5	11	2	1	3.9	3.0	23.1%
Forest Hills	12	74	2	1	23.5	17.9	23.7%
Fields Corner	2	5	1	1	1.7	1.4	16.1%
Harvard	6	41	3	1	15.5	11.6	25.3%
Haymarket	16	114	5	1	19.7	14.9	24.2%
Kendall Square	2	5	1	1	1.4	1.2	17.9%
Kenmore	4	32	2	1	8.7	6.7	
Lechmere	4	24	1	1	5.6	4.0	28.4%
Lynn	6	9	1	1	2.8	2.5	9.9%
Malden	7	19	1	1	4.8	4.0	16.9%
Mattapan	6	24	2	1	7.7	5.6	27.0%
Maverick	5	18	2	1	5.4	3.9	27.6%
Newton Corner	4	8	1	1	1.8	1.5	13.8%
Quincy	10	33	1	1	8.5	7.1	15.7%
Ruggles	8	58	2	1	15.0	10.6	29.3%
Salem	4	5	1	1	1.8	1.4	22.3%
South Station	7	5	1	1	1.8	1.4	22.3%
Sullivan	8	40	3	1	10.0	7.7	23.6%
Watertown	2	8	2	1	1.9	1.6	14.6%
Wellington	7	25	2	1	7.5	6.2	18.0%
Wonderland	1	0	1	1	0.0	0.0	0.0%
None	15	42	6	1	6.2	3.5	43.8%

operating ratio of these services is 27.3 percent. Collectively, the routes in this group account for about 30 percent of the subsidy of the bus services. These routes operate out of six garages, and serve a total of 10 rail stations. The services tend almost by definition to be routes with a high degree of service, with an average requirement of over 10 buses for each route.

Routes with High Operating Subsidy

The hypotheses behind distinguishing routes with the highest operating expenses is that these routes hold the greatest potential for reducing the total subsidy. This group is comprised of 19 routes with a total of 199 buses. They operate out of 6 different garages, and serve 9 different rail stations. The total estimated operating expenses of this group is \$60.5 million, and the estimated subsidy for these services is \$46.2 million, which represents 33.3 percent of the total bus system.

Routes with the Highest Operating Ratio

The objective of looking at routes with the highest operating ratio is that a set of routes that paid for a high percentage of their operating expenses out of the fare box might offer the possibility of becoming profitable in a lower cost environment. The group consists of 28 routes operating 200 buses. The routes operate out of 7 garages, and serve stations in a wide geographic area. The estimated cost of the services on these routes is \$43.0 million. None of the routes have operating ratios above 65 percent. Most of the routes have operating ratios below 50 percent.

Routes with the Lowest Operating Expenses

The premise for looking at routes with the lowest operating costs is that the routes associated with low costs would have moderate levels of service, and be well within the financial, managerial, and operational reach of private carriers. There are 45 routes in this group, which require a total of 99 buses in the peak period to operate. The estimated total cost of all of the routes in this group is \$17.4 million, and the total estimated subsidy is \$14.0 million. The overall operating ratio of the group is 19.6 percent, with the highest individual route at 39.8 percent. The service levels on these routes are low. The routes in this group typically are served by one or two buses, or share a bus with other routes. They are operated out of most of the garages, and serve a wide variety of rail stations.

Routes with the Lowest Operating Subsidies

The premise for considering routes with the lowest operating subsidies is that cost savings could eliminate the need for subsidies. The size of this group was restricted to approximately 100 buses because of the large number of routes involved. This group consists of 42 routes operating from virtually every garage in the system and serving

nearly every rail station. The estimated operating expenses for these services is \$16.5 million. This money represents about 9 percent of the total bus operating subsidy. The low subsidies on these routes is due in most part to the relatively low level of service and the low costs of the services, rather than high cost recovery through the farebox. The operating ratio of this group is 22.6 percent.

Routes with the Lowest Operating Ratio

The premise for separately looking at routes with the lowest operating ratio was to identify a set of routes whose overall operating ratio might be improved through transferring them to the lower cost environment of the private sector. This group consists of 39 routes operating 100 buses. The routes are based in virtually all garages, and serve a wide variety of rail stations. The estimated operating expenses for these routes is \$27.8 million, and the estimated subsidy of the group is \$24.2 million. The operating ratios on these services range from a low of 5.5 percent to a high of 15.8 percent. The overall operating ratio of the group is 12.9 percent.

Express Routes

Two groups of express routes were developed and examined. The reason for isolating the express services is that they usually have relatively high cost structures driven by high peak to base ratios, and that the private sector might be able to offer operating and capital economies in this environment. The first group of express services are the "300" series routes, which generally operate in the western and northwestern corridors of the region. There are 10 routes in this group that require 77 buses operating from 3 garages. The estimated operating expenses of the routes are \$9.8 million, the estimated subsidy is \$5.7 million, and the overall operating ratio is just under 42.0 percent. The operating deficit of the group represents about 4.1 percent of the total deficit.

The "400" series of routes serve the North Shore area, connecting various suburban areas with commuter rail stations and then running express to the center city area. Many operate as local services before going into the express mode. There are 7 routes in this group, requiring 41 buses. All routes operate from the Lynn garage. The total operating expenses of this group are estimated at \$10.4 million, and the operating deficit is \$8.1 million. The overall operating ratio of the group is 21.9 percent, with the individual routes running from a low of 15.8 percent to a high of 30.6 percent.

Routes Assigned to Each Garage

The premise behind developing route groups by garage is that there may be one or more facilities, which if the routes from those garages are contracted out, the facilities could be closed, or utilized for other purposes by the MBTA. In cases where routes operate out of one garage on weekdays and another garage on weekends, the route data are

included in the garage from which the service operates on weekdays. The levels of service, costs, subsidies, and operating ratios at each of the garages varies significantly.

All of the garages serve under 150 peak buses, and 6 garages serve under 100 peak buses. While Charlestown and Somerville function as two separate garages, they operate and are maintained out of the same buildings. The services operated from each garage tend to be specific to subregional areas. The services operated from Lynn and Quincy tend to be the most isolated. Concentrating competitively procured services geographically, desirable for operational reasons, is likely to substantially reduce or eliminate some existing garages from MBTA's operation.

Routes Operating to Rail Stations

The final set of routes are those that serve selected rapid transit or commuter rail stations. The rapid transit stations are either a terminal station on a rapid transit line, or a major bus coordination station on the outer segment of a line. Some of the routes that operate to outlying rail stations terminate at the stations, and others continue on to other destinations. The routes included in this group are all of the routes that have the name of the station in their route name.

Summary

Several key points become evident from these group descriptions:

- The groups based upon financial criteria are spread geographically throughout the system. They come out of almost every one of the MBTA's garages.
- Express routes originate from a select number of garages.
- Garages vary considerably in the number of routes and peak buses operated. All garages have fewer than 200 peak period buses. Albany, Fellsway, Lynn, and Quincy garages, given their size, are more amenable for present consideration.
- Feeder routes to outlying rail stations are closely associated with particular garages.

Cost Modeling

The financial data used in the above descriptions of the route groups comes from the cost modeling work done by the Consultant Team. The Consultant Team used 3 increasingly precise and detailed cost models to review the route performance, to select and evaluate route groups, and to develop the detailed cost estimates of the services to be contracted. The models used were the MBTA's own internal cost model, a factored version of the MBTA's cost model, and an entirely new model developed using the most recent cost estimates. Each model provided

increasingly more reliable estimates of bus operating costs, various expenses and were more accurately assigned to specific routes. The last model is considered the most accurate of these and was used for the Phase I planning effort. It is referred to as the "planning model."

The planning model is a three factor cost model that applies MBTA FY 1992 operating expenses to the spring 1992 service statistics. The MBTA provided the Consultant with route level revenue assignment used in this model. This model is consistent with the FTA fully allocated cost guidelines. The results are adequate to provide an estimate of the costs of any set of services, but should not serve as the basis for the final estimate of MBTA costs to operate specific services. The Consultant Team will improve the accuracy of the cost model at the onset of the Phase II study in order that final cost estimates can be used for the purposes of refining package selection and to assess the contractor bids with the cost of MBTA operation. The planning model's documentation and its specific results when applied to each of the MBTA routes is included in the Appendix.

Applying Selection Criteria

Next, in Exhibit III-2, "Assessment of Route Groups," the Consultant Team applied 9 criteria relating to economics, operations, and administration/contracting. By undertaking this exercise with MBTA review, the Consultant Team could identify the most promising route groupings for developing bid packages. The criteria are:

Economic criteria

1. *Achieve "material" short-term savings in variable costs:* Is the probability high that contracting this service will result in relatively low operating cost savings compared to similar MBTA services?
2. *Achieve reduced fixed costs over a longer period, such as that realized by closing a garage:* Is the potential high to realize significant reduction in fixed cost savings within the next 3 to 5 years?

Operational criteria

1. *Be separate or separable from other MBTA services:* Can service be operated so that regular MBTA buses and contractor buses: do not have to share roadway, bus stops, and terminal facilities as little as possible?
2. *Operate in a distinct service area:* Are the routes located in close geographical proximity of each other?
3. *Provide "seamless" service to riders:* Can service be readily coordinated with all other MBTA services so that the rider sees no difference in fares, fare media, route and schedule information, transferring, and vehicle livery (color scheme)?

Exhibit III - 2: Assessment of Route Groups

Criteria	Route Groups								
	High Subsidies	Low Subsidies	High Operating Ratio	Low Operating Ratio	High Expense	Low Expense	Express Routes	Rail Station Routes	Entire Garages
Economic									
Short term savings in variable costs	4	2	4	3	4	2	4	4	4
Long term savings in fixed costs	4	2	4	2	4	2	4	4	5
Operational									
Separable from other MBTA services	2	2	2	3	2	3	4	5	4
Distinct service area	2	3	2	3	2	3	5	4	4
"Seamless" service	3	3	3	3	3	3	4	4	4
Minimize risk of degradation of quality	3	2	3	2	3	2	4	4	3
Administration/Contracting									
Minimize impact on MBTA employees	2	2	2	2	2	2	2	3	1
Managable by the MBTA	3	4	3	4	3	4	4	4	4
Encourage interest of contractors	2	2	2	2	2	2	3	4	4

Key: 5 1
 very favorable not favorable

4. *Minimize the risk of degradation of service quality and reliability:* Relative to other service groups, does this service present a special challenge for assuring high quality service and prudent expenditure of government funds?

Administration/Contracting criteria

1. *Minimize impact on current MBTA employees:* Compared to other service groups, does this group unduly disrupt MBTA employee work routines? The type of work? The location of the work site? Bring MBTA employees in contact with contractor employees?
2. *Be manageable by the MBTA:* Does this service package present any special challenges that makes good contract service monitoring particularly difficult?
3. *Encourage interest by a number of potential competitive contractors:* Does this service group contain any attributes anticipated to discourage contractors from bidding on the service?

The results of this assessment are laid out numerically in Exhibit III-2 "Assessment of Route Groups." Each grouping is rated on a scale of 1 to 5 for each specific criterion. The rating of "1" being the least favorable and "5" being the most favorable in terms of whether a particular group is suitable for the competitive procurement process. The Consultant Team examined the available data, used professional judgment, and both discussed and reviewed the ratings with MBTA management.

The rates assigned to the groups for each criterion are subjective appraisals of MBTA's situation. Aggregation of individual rates for each group is not recommended: the matrix is principally a subjective tool meant to focus comparative thinking on specific groups of routes.

Economic Criteria

The first 2 criteria are "savings in variable costs" and "opportunity to reduce fixed costs." This assessment shows the following 6 groups as the most favorable: high subsidies, high operating ratio, high expense, express routes, rail station routes, and entire garages. Logically, service that costs the most and has the least revenue return would offer the greatest potential for reducing operating costs. By definition, high subsidy and high expense services offer greater potential for saving than service on the other end of the scale, as they offer a higher differential (in absolute dollars/unit of service) between current costs and the potential costs in a competitive market place.

Services with high operating ratios tend to be composed of routes with high ridership and large amount of service. Express and rail station service tend to have high peak to base ratios because service is dominated by commuter travel. Operating peak period service is simply more

expensive on a per unit basis than off peak travel due to inefficiencies in labor assignment, high mileages incurred, and the need to maintain vehicles that are used for only a few hours each weekday. Lastly, groups by garage offer a geographic focus and an apparent opportunity to shrink capital assets. Because on the ability to shift resources between garages, savings in variable costs can translate into additional savings in fixed costs.

Operational Criteria

Four criteria relate to operational concerns dictated by the nature of the groupings. The first criterion is "separable from other MBTA service." Three of the groups were judged to be favorable in this aspect. These groups are express, rail station, and entire garage service groups. The geographic distribution of the other groups is evident when one inspects the list of routes that make up each group (Appendix D).

The "distinct service area" criterion is similar to "separable from MBTA service" in that they both generally refer to physical operation of the buses. However, service that is in a distinct area could still have separability problems. At the aggregate level the important distinction between the two is that services generally operating in the same areas present an operationally sound unit of inter-related services. They are easier and less expensive to operate and monitor, when compared to the same amount of service spread out over a large area. Express routes have distinctive areas, yet compared to rail feeder service, they are not quite as easily separated from regular MBTA service because the express routes all travel into the urban core. Other route groups have a widely distributed service area, as evidenced by the number of garages and rail stations shown on the map found within the Executive Summary.

In regards to "seamless" service, there exists little difference between the alternative service groups. Express routes, rail station feeders, and entire garage service all ranked slightly more favorable than the other group alternatives. These services present fewer coordination issues and potential operator conflicts. The more riders are interacting with both MBTA and contractor bus services, the more likely minor problems may arise regarding communication links, missed transfers, etc.

In considering the "minimize risk" criterion, the difference between groups is modest as it is with seamless service. Express, rail station feeders, and entire garages are rated better than the other groups. Contracted services that intermingle with regular MBTA service require more contact between MBTA personnel and a contractor's drivers, thus the possibility for conflict.

Administration/Contracting Criteria

The last set of criteria relate challenges the MBTA must consider in terms of its own organization and in terms of successfully carrying out the competitive procurement process. The first criterion in this group is "minimize impact on MBTA employees." Except for the groups of "rail station routes" and "entire garages" all the groups rate somewhat unfavorably. "Rail station routes" were rated neutral, and entire garages were rated as the least favorable. Because

the rail feeder services are more separable from other MBTA service, there would be marginally less impact. The initial impact on "entire garages" would clearly extend to capital facilities, directly impact personnel other than bus operators, and the MBTA's withdrawal from a garage could present a significant psychological impact on MBTA employees.

For the criterion, "be manageable by the MBTA," most groups were rated quite favorably. Three groupings (high subsidies, high operating ratio, and high expenses) were judged as neutral because they have relatively more geographic dispersion, service, ridership, and revenue. They are simply more difficult to manage than other groups.

The last criterion, "encourage substantial competition" assesses the relative attractiveness of each grouping from the perspective of potential contractors. As with several other criteria, the ratings indicate that express, rail station feeders, and entire garages are more favorable than the other groups. Of these, rail station feeders and entire garages are ranked more favorably because contractors are more likely attracted to groups that are more separable, distinctive, and compact. In such situations, contractors are more likely to use their resources most effectively. In addition, the greater the intermingling with regular MBTA service, the more micro-managing of a contractor will be necessary. These groups present packages which are operationally sound, manageable and measurable.

Route Selection Recommendations

The following findings and recommendations are derived from the analyses:

- Both the high and low cost groups of services score low on many of the criteria. The reasons for these scores are they tend to be spread over a large portion of the MBTA service area, they operate out of a large number garages, they do not operate in a distinct service area, and they tend not to lead to the closing of a garage.
- The express services are likely candidates, as they concentrate service geographically, operate out of few garages, and thus allow closure of selected garages. The service operating to given rail stations also tends to score well, particularly in the cases of outlying stations. There is significant correlation between these two groupings.
- Garage groups score well and are likely candidates for contracting. This conclusion is particularly true for the smaller garages, which can be closed if through contracting, the routes are based elsewhere. At some point, under this scenario it will be advantageous for the MBTA to consolidate its remaining directly-operated buses into fewer garages (other operational issues considered) to avoid the fixed costs of managing, operating, and maintaining facilities being used at a fraction of their capacity.

- Significant overlap exists between the routes serving outlying rail stations, the 400 series express service, and routes operated from the smaller garages in Lynn and Quincy.

This strategy would lead to the eventual closing of perhaps as many as three operating divisions. Based upon these findings, the highest likelihood of a successful competitive approach representing a significant opportunity for cost savings lies in a strategy of competing route packages based first on operational criteria, secondarily on economic criteria, and third on administrative criteria. Routes serving selected rail stations, plus express services, are the most productive groupings. An incremental contracting approach to these services could lead to the closing of up to 3 MBTA garages, with the attendant fixed cost savings. The upper parameters of these services are 60 routes, 213 peak period bases, and \$51.4 in FY-93 operating costs.

SECTION IV

SUPPLYING CAPITAL EQUIPMENT

While the driving issue in this study is bus service, the MBTA and the Consultant Team faced two vital, capital issues, which are inter-related. These issues are whether the MBTA should supply rolling stock and garages to contractors or if contractors should supply these assets themselves. Both rolling stock and garages entail millions of dollars in capital investment and operating expenses. By wisely dovetailing the use of these capital investments with the contracting of motor bus service, the competitive procurement process can result in maximum economic savings and can reduce uncertainty for both the MBTA and contractors. Full coordination of MBTA capital resources with the contracting of services assures operational integrity for all motor bus services, regardless of operator. Options for coordinating available capital assets with the contracting of bus services are presented in this section.

A - Provision of Rolling Stock

New transit buses cost about \$200,000 each. With an average 12 year life each bus involves a capital cost allocation of approximately \$16,000 a year. This represents a significant cost in the provision of motor bus transit service. Based upon 1992 Section 15 data, capital costs represent a 17 percent increase over operating costs (from FTA Section 15 forms 103 and 301). Transit properties typically use one or more approaches to providing vehicles: contractors can use their own equipment, lease equipment, or use the transit agency's equipment for a nominal charge.

Should a contractor supply vehicles (through lease or purchase or from existing inventory), direct compensation for the use of these non-MBTA rolling stock will be required. When existing MBTA rolling stock is utilized, there are no new net capital costs incurred, resulting in no new expenditures. Should additional vehicles be required, the public sector usually has better access to capital funding markets, either through public sector financing or use of FTA capital funds, although the schedule may be lengthy. Private operators may often obtain equipment on very short notice, but will pay market rates for financing and are not (notwithstanding some special FTA programs administered through the sponsoring public agency) eligible for FTA capital assistance.

The bottom line is: *Who supplies the rolling stock?* The options are: [1] the MBTA, or [2] the contractor.

In order to answer this question, the Consultant Team assessed the MBTA bus fleet with respect to its needs, the schedule for new and rehabilitation of older buses, and a wide array of related factors. In the appendix, the Consultant Team reviews various sub-options. Several sub-options

dropped out as the study progressed and the appendix gives insights into the variety of options possible. Key issues are:

- Does the MBTA have sufficient surplus buses?
- How favorably will contractors respond to the availability of MBTA buses?
- What are the MBTA's plans for updating its fleet?
- How might MBTA employees react to contractors using MBTA owned-vehicles?
- How does the MBTA maintain overall control of contractor-operated services?

In any event, it is assumed that the MBTA desires only the best possible equipment to be used in daily service to its patrons, and it wishes to avoid duplicating existing assets when there are suitable alternatives.

Does the MBTA have sufficient surplus buses?

The MBTA currently needs 753 buses to operate its peak period, weekday morning service (this number does not include spares). By contracting out selected service, the MBTA would obviously be reducing its peak vehicle demand by the peak number of buses associated with those service packages. The current fleet size is 1,008 buses, down from last winter's fleet size of 1,037 reported in 1992 Section 15 documentation. This difference between the 1,008 buses and the maximum peak demand of 753 buses means that the MBTA has a surplus fleet of 255 buses or a spare ratio in excess of 33 percent. FTA guidelines call for a spare ratio of 20 percent. MBTA meets the FTA guideline by designating a portion of the reserve fleet as a "emergency contingency fleet" related to the energy contingency needs.

The MBTA bus fleet is old: based on 1992 Section 15 information, the current fleet age is 10.6 years. Since the average bus has a capital asset life of 12 years, the average fleet age should be closer to 6 years. Five different makes and 15 models are present in the fleet. A typical transit coach is expected to reach a life time mileage of 500,000 - 1,000,000 miles, compared to the average MBTA bus mileage of 260,000 miles at age 12 years. Not all of the MBTA fleet is air conditioned and just 19 percent of the fleet is currently wheelchair accessible. These factors create significant difficulty in assigning the fleet to garages and routes, and increase the burden of maintenance, an operating expense. In essence, a larger old fleet is being used in lieu of a smaller new one.

Despite these figures, the MBTA reports not missing any trips in this past spring as a result of insufficient equipment availability. The MBTA is currently downsizing and modernizing its fleet, and without accounting for any possible service reductions, the plan is to reach a fleet size of 950 buses by 1995.

Other complicating factors include:

- Assignment of wheelchair equipped vehicles to meet ADA requirements and other MBTA commitments regarding accessibility

- Availability and distribution of air conditioned buses throughout the system
- Use of specialized equipment, such as those vehicles with special engines and/or transmissions on express routes.

These must be balanced in close cooperation with MBTA staff to plan for an orderly transition from MBTA to contractor operation of selected services.

The basic answer to the question is that the MBTA does appear to have sufficient buses to supply contractors with rolling stock from the MBTA's existing (or anticipated) fleet, although the transition to contractor operation, size of the contracted service increments, and any new services requiring additional buses create complications which need to be addressed in great detail.

How favorably will contractors respond to the availability of MBTA Buses?

Contractors expect to be held accountable to specific service standards, several of which are directly related to bus condition. Financial and other sanctions for non-performance will be implemented should performance be inadequate, therefore contractors have an intense interest in the age and initial condition of any assets they will use. However, one of the most important factors in maintaining quality service is equipment reliability at contract inception and thereafter. The reliability of buses relates to their age, condition, and the quality of the maintenance received in the past. Contractors believe that if they are to be held accountable for service performance, they need to know the quality of buses in their fleet and have control over maintenance.

The use of existing MBTA buses carries a number of uncertainties. If existing vehicles are to be operated by contractors, as part of the bidding process, the contractor will need access to such equipment in order to assess its condition and estimate the cost of bringing that equipment up to a standard which they would judge sufficient to meet operating standards. This, in turn, implies adequate time and an initial financial investment to accomplish any necessary work, which may have impacts on the MBTA's schedule for fleet assignments, and the cost of the contract. In short, the older and more suspect the equipment, the perceived risk by the contractors escalates and the cost associated with the equipment rises.

Experience in other cities (e.g., Denver, Miami, New Orleans) indicates that contractors are suspect of existing rolling stock, especially that which is over 5 years old, has experienced heavy use, has been maintained by the public agency, or for which there is a minimal (e.g., less than 60 days) transition period between the operators. Competition between contractors could moderate some of the potential negative impacts of offering older vehicles for use by contractors.

Finally, the MBTA must have sufficiently good rolling stock to make the transition from its possession to that of the contractor. This is usually expected to be a 60 day period, or longer,

during which the contractor takes possession of the vehicles, performs necessary maintenance, installs/alters equipment as appropriate, and trains its staff. The MBTA must have sufficient fleet resources to remove the buses from its active fleet during this period, while still meeting its commitments to provide bus services.

What are the MBTA's plans for updating its fleet?

The MBTA anticipates a major improvement in its bus fleet during 1994. Currently, 150 buses are being rehabilitated and another 50 buses are anticipated to be in this process by spring 1994. The MBTA is purchasing 200 new buses for anticipated delivery in spring 1994. The MBTA also has an option from its manufacturer to purchase an additional 180 buses in 1995. These bus purchases and rehabilitations, in combination with the retirement of older buses will bring the average fleet age down from 10.6 years to 8 years by 1995. Accounting for rehabilitation activities (which reduces the effective age of the equipment), the average fleet age will be approximately 6.7 years.

The MBTA currently does not have a plan as to how many and to which garages rehabilitated and new buses would be assigned. In the past, rehabilitated buses would simply be returned to the garages from which they came and new buses would be allocated proportionately according to need. The MBTA plans to change this approach to account for the economic and managerial benefits of having fewer types of vehicles at each garage and to assess lift equipped requirements according to the type of bus route.

How might MBTA employees react to contractors using MBTA-owned vehicles?

Experience in other cities indicates that there exists a high degree of attachment between transit agency employees and the fleet they maintain and operate. This natural attachment may translate into resistance that could be counter-productive to the MBTA's overall mission of supplying services. Examples may range from assignment of older or less reliable vehicles to contractor-operated services, to declining maintenance of the contractor's vehicles prior to the transition, or worse. A firm fleet assignment methodology based on overall MBTA needs, coupled with an adequate transition period for any MBTA vehicles leased to the contractor, is necessary to assure overall service continuity.

How does the MBTA maintain overall control of contractor-operated services?

MBTA control of rolling stock is a benefit should a contractor not perform adequately, or in the case of an emergency. MBTA ownership of the fleet assures direct access to buses in the event this is necessary.

However:

- This access may also be gained through contract language for lease or title assumption
- The MBTA has a large fleet that can substitute, on at least a short term basis, for a certain number of contractor's buses. This is certainly the case during the initial implementation of a competitive program, when the number of contractor-operated buses is small (e.g., 40 of approximately 1000 buses, or 4 percent).

Control issues are therefore considered important, but not over-riding in deciding vehicle ownership.

Recommendation on Provision of Rolling Stock

The Consultant Team recommends that in the first year of this project, the MBTA make available to the contractors new or recently rehabilitated buses to the extent feasible, given other constraints. The vehicles would be leased to the contractor for nominal cost (\$1 per year), with the contractor responsible for maintenance, warranty work, etc. Such a strategy would eliminate most issues related to vehicle quality and accountability, make maximum use of MBTA's investment in its existing fleet, simplify the transition to contractor operation, reduce a potential contractor's perceived risks and therefore mitigate contract pricing, and provide a firm basis for successful service initiation. In the longer-term, the MBTA should conduct the necessary analysis to determine whether it might be more cost effective for contractors to use their own vehicles.

B - Provision of Bus Maintenance and Storage Facilities

As with the provision of rolling stock, bus maintenance and storage facilities entail a major capital investment. These facilities typically involve both indoor and outdoor bus storage, a driver report area, administrative offices, bus washers, revenue collection equipment, vehicle maintenance area and equipment, parts storage, fuel storage, and an array of other tools, facilities, and equipment that may be located at selected garage sites. These include heavy maintenance, training facilities, testing equipment, police and street supervision programs, and tire shop. Little capital cost information exists on the cost of such facilities at the MBTA, largely due to the nature of the public sector accounting system's treatment of capital items as "sunk costs." Clearly, however, the capital investment may be referred to in terms of millions of dollars.

For the same reason that the possibility of contractor use of rolling stock was assessed, MBTA bus maintenance and storage facilities are being considered for use by contractors. They represent a resource that if leased to contractors at a nominal cost (e.g., \$1 per year), avoid duplicating existing facilities, and allow the MBTA to avoid an array of costs which are

currently considered fixed. However, the MBTA may have other productive uses for these facilities, in which case their use by contractors may not be appropriate.

In order to answer these questions, the Consultant Team and MBTA staff assessed the MBTA maintenance and storage facilities with respect to the facility size, general condition, system-wide services provided, coordination with route groups (Section II), and from a prospective contractor's general perspective. An Appendix provides additional information on this topic. The following information summarizes the issues and discusses alternatives.

As with rolling stock, the bottom line is: *Who supplies the maintenance facilities? The MBTA or the contractors?* Again, the options are (1) the MBTA, or (2) the contractor. To answer this question, the Consultant Team addressed a number of related issues:

- (1) What bus maintenance facilities does the MBTA have?
- (2) What plans does the MBTA have for updating these facilities?
- (3) How favorably would contractors respond to the availability of MBTA facilities?
- (4) What kind of saving could be realized from closing selected facilities?

(1) What bus maintenance facilities does the MBTA have?

The MBTA owns 8 bus maintenance garages at 7 locations. These garages have the following attributes:

Albany

The Albany garage is located at Albany Street and Randolph Street just a 1/2 mile south of downtown Boston. A total of 114 buses are stationed at Albany, of which 85 buses operate during the peak period. Built in 1941, Albany has over 80,000 square feet in working floor space. In addition to routine maintenance and storage activities, the Albany garage houses the tire shop for all MBTA bus operations. Many commuter routes (especially those operating along the Mass. Turnpike) operate from this location, with the attendant deadhead costs between the garage and the end of line in the morning, and the reverse in the evening. This facility is closed at night and on weekends.

Bartlett

The Bartlett garage is located off of Bartlett Street, about 3 miles southwest of downtown. A total of 170 buses are stationed at Bartlett, of which 152 buses operate during the peak period. Built in 1931, the 3 separate shops have a total working floor space over 72,000 square feet. MBTA management reports this facility as very old and possibly in need of replacement.

Cabot

The Cabot garage is located off of Dorchester Avenue just south of the Red Line Broadway Station. The Cabot and Albany garages are within 1/2 mile of each other. A total of 198 buses are stationed at Cabot, of which 152 buses operate during the peak period. Built in 1974, it is relatively new to the MBTA (although now nearly 20 years old). It was stated that this facility has some design and ventilation problems.

Charlestown

The Charlestown facility is composed of two divisions, Charlestown and Somerville (also known as Bennett Street). While the buses at this facility are housed and maintained in the buildings on a joint basis, they function as two separate garages. The Charlestown garage is located just 3 miles north of the downtown. A total of 240 buses are stationed at these two divisions, of which 169 buses operate during the peak period. Built in the late 1970s, Charlestown is considered in satisfactory condition.

Fellsway

The Fellsway garage is located off of Salem Street, 5 miles northwest of downtown and 1 mile west of the Malden Center Orange Line station. A total of 92 buses are stationed at Fellsway, of which 72 operate during the peak period. Built in 1925, it is one of the oldest garages and has over 30,000 square feet in working floor space. This facility is reportedly in satisfactory condition. At Fellsway, the MBTA conducts tests on new equipment and maintenance training. Because of the space requirement for these activities, replacing the Fellsway facility would be difficult and expensive, and perhaps impossible on short notice.

Lynn

The Lynn garage is located in the City of Lynn, 8 miles northeast of the downtown. A total of 107 buses are stationed here, of which 78 operate during the peak period. Built in 1936, this garage is reportedly in satisfactory condition. There are nearly 54,000 square feet in working floor space at this site.

Quincy

The Quincy garage is located in the City of Quincy, 7 miles southeast of the downtown. A total of 88 buses are stationed at Quincy, of which 68 operate during the peak period. Built originally as a trolley barn, this facility was converted to a bus facility in 1930 and rebuilt in the 1980s. While it reportedly has limited space and other problems, the Quincy garage is considered in reasonable condition.

(2) What plans does the MBTA have for updating these facilities?

The MBTA has no major capital improvement program for any of the bus garages through FY 1997. The MBTA has identified the Bartlett garage for future attention, but has not yet secured funding for restoration and expansion.

(3) How favorably would contractors respond to the availability of MBTA facilities?

Little experience exists regarding contractors using public transit maintenance facilities, so the response of contractors to this issue is anticipated to vary considerably, and be dependent upon the contractor's situation, the contractor's existing garages, the condition (perceived or real) of the MBTA facility, and the number of buses to be utilized from a particular facility.

Most local contractors already have garage facilities, and unless they are at capacity or are not located in a suitable location, the contractor is likely to prefer in-house facilities over operating from multiple sites. For some contractors, substantial investment including facility maintenance and utilities, may be necessary prior to and during the contract period. Firms without a suitable local operating base, including national firms, are more likely to be interested in MBTA garages. Finally, the transitional problems of moving MBTA operations out of MBTA garages, and the contractor into the facility presents logistical obstacles. In essence, the decision becomes one of financial and operational considerations.

In contrast to the leasing of buses, garages cannot be readily leased in part. The smallest garage has a peak period vehicle requirement of 72 buses, which will likely exceed initial route packages in size. Contractors are not anticipated to be interested in joint operations from one facility.

Potential contractors, especially national and large regional companies, can lease suitable space, establish outdoor storage facilities, and subcontract maintenance activities to meet their requirements, especially for relatively small blocks of bus service.

(4) What kind of savings could be realized from closing selected facilities?

Unlike the case of rolling stock, quantifying cost savings related to contractor use of MBTA garages is extremely difficult. The cost of a garage is dependent upon the type of facility, its condition, land cost, and other options available. The MBTA conservatively spends \$10 million annually on fixed facilities for bus operations (source: FTA Section 15 reports). By actually closing facilities as opposed to scaling back operations, the MBTA may save on fixed facility costs in relation to the number and size of the facility(s) to be closed. Alternatively, the facilities may be utilized for other MBTA purposes, transferred to another public purpose, or disposed of.

The operating cost figures cited in Exhibit II-1, "Example Operating Costs for Contracted Service" and Exhibit II-4, "Private Carrier and MBTA Route Comparisons" are primarily for

services operated from a contractor's own maintenance facility. Therefore, the operating cost figure would likely be decreased by the use of MBTA facilities. Savings to the T would result whether a contractor chooses to use a MBTA facility or whether the facility is closed. Additional savings and/or revenues, such as those from abandonment (v. closing with continued maintenance), disposition of the asset, or its rental to other parties at fair market value, were not considered in the cost analysis.

The potential savings produced from the contracting of the bus service itself (e.g., the miles and hours of bus service) is the driving force in this project: savings related to maintenance facilities are considered a potential "bonus." They should be evaluated as part of the implementation of the competitive activity during Phase II of this study, and asset disposition alternatives would be considered thereafter. Cost savings from closing a garage are highly dependent upon local circumstances.

Recommendation on Provision of Bus Maintenance and Storage Facilities

The leasing of bus maintenance and storage facilities to contract operators should be dealt with on economic grounds as a complementary issue to route packaging. Because of the recommended route packaging, the Lynn, Quincy, and Albany Street garages are the logical choice for closure over the next 3 to 5 years, should they not be utilized by contractors or otherwise by the MBTA.

Based upon an economic assessment of the effected garages, the MBTA should compare market opportunities for each facility to the financial savings from a contractor operating a given facility in place of the MBTA. There are no identified advantages to forcing a contractor to use an existing MBTA facility.

SECTION V

ASSURING SERVICE QUALITY AND CONTROLLING ADVERSE IMPACTS

Controlling Risk

In undertaking this study, the Consultant Team was charged not only to investigate potential savings in expenses, but also to create an approach that assures the service provided by a contractor is of the same or better quality than current service. The introduction of contracted services should not create any barriers or inconvenience to the riders. There should be no adverse impacts either intended or unintended because of contracting. The term "seamless" service, discussed earlier, is meant to characterize the idea that the riders will receive at least the same level of service quality under contractually operated service as they currently receive from MBTA service.

This section deals with 3 types of risks:

- One is the risk that contractual service could diminish service quality, as the MBTA's role changes from one of employee *supervision* to contractor *management* for contract operations. This concern includes the traditional factors associated with service quality, such as service level, on-time performance, courtesy, etc.
- The second type of risk is identified as controlling adverse impacts which indirectly relate to service quality. This includes programmatic issues such as compliance with regulations, liability, asset protection, etc.
- Concluding this section is a discussion of fare and revenue issues, as they also have an indirect impact on service quality. These issues are fare structure, fare box revenue collection, and the use of fare collection equipment.

To best minimize the risks of reduced service quality and avoid any other adverse impacts of contracting, the Consultant Team evaluated alternative approaches to a list of specific issues, as presented in Exhibit V-1 and V-1b, "Summary of Options Considered and Program Recommendations." These issues are discussed below.

The overall goal is to specify the MBTA specify standards, include these standards in all contracts, and provide the necessary management to insure adherence to insure these standards. The MBTA would monitor the contractor for compliance. In effect, the system allows the contractor to control his own destiny: Good performance leads to MBTA and rider satisfaction, while below standard performance leads to managerial, administrative, and/or financial penalties.

Exhibit V - 1: Summary of Options Considered and Program Recommendations: Service Quality Issues

Issue	Options	Recommendations
1. Who should be responsible for service quality?	- Contractor - T	- T prescribes standards - Contractor assures delivery - T monitors and prescribes remedy - T defines penalties, remedies
2. What should contractor provide?	- Full range of functions and facilities	- Contractor should provide supervision, transportation and maintenance
3. Who should decide service levels, plan operational changes, market service, provide rider information?	- Contractor - T	- The T should maintain responsibilities - Contractor may offer proposals for routine improvements
4. Who should determine fares?	- Contractor - T	- The T should prescribe fares
5. Who should be responsible for safety & training?	- Contractor - T	- T sets standards - Contractor assures compliance or better
6. How should on street operations be supervised and monitored?	- Contractor should control. - T should control. - Contractor manage, T support and monitor	- Contractor should manage, T should support and monitor
7. Who should provide passenger security?	- Contractor -T - Local governments	- T and local governments
8. Who should be responsible for meeting the requirements of ADA?	- Contractor - T	- Both

Exhibit V - 1B: Summary of Options Considered and Program Recommendations

Other Risks Associated with Contractual Service

Issue	Options	Recommendations
1. How fast should the contracting of T service proceed?	- At the rate of attrition - Faster than attrition	- With attrition
2. How large should contracts be?	- Sized to service segments - Entire garage - Multiple garages	- Sized to service area segments - Move to garages in increments - 20 to 40 buses +/- at a time
3. How many contracts should there be?	- Single - Multiple	- Multiple
4. What should the overall schedule be?	- Few large blocks, annually - More small blocks, semi-annually	- More, smaller blocks, semiannually
5. Who should be responsible for revenue handling and security?	- Contractor - T	- Contract should be on a net cost basis, contractor should be at risk for revenue collection and security
6. Should a contractor be required to accept monthly passes and MBTA tokens?	- Yes - No	- Yes, to follow seamless service concept
7. Who should be responsible for collecting FTA Section 15 data?	- Contractor - T	- Contractor with monitoring by the T
8. What communications system should be used?	- Contractor separate - T system - Joint communications	- Contractor and drivers should be in direct communication by radio - Contractor supervisor should be in radio contact with T Control center - T should scan contractor radios
9. What additional costs might the MBTA incur?	- Analyze additional cost - Analysis not necessary	- Elaborate analysis not necessary - Additional costs are minimal

Overall, the MBTA and the contractor are jointly responsible for risk management: the MBTA must select the best possible contractor, the contractor must perform well, and the MBTA must monitor and correct the contractor on an ongoing basis.

Note that several of the items discussed here are also covered in Section VII - "Implementing a Competitive Procurement Process" in the context of contractual language and certain risk management approaches.

Service Quality Issues

1. Who should be responsible for service quality?

Due to the public funds involved, the service operated by a contractor needs to be viewed and treated as the MBTA service that it is, yet the contractor needs to control service delivery and be held responsible for MBTA standards. The MBTA should prescribe the standards in any number of areas, likely using the standards that the MBTA strives for or perhaps higher ones. These include:

- | | |
|-----------------------|------------------------|
| - On-time performance | - Trip completion rate |
| - Vehicle cleanliness | - Employee appearance |
| - Driver Courtesy | - Complaint resolution |

The contractor should be responsible for delivering service that meets the specified MBTA standards, or face actions that will motivate correction of these deficiencies. The MBTA should monitor and prescribe remedies, such as financial penalties, according to procedures detailed in the contract. The use of incentives is suggested to encourage performance at above standard levels. Such an approach provides a motivation for the contractor's employees to strive for excellence, not settle for contract compliance.

2. What should contractors provide?

The options are for the contractor to provide either [1] the full range of functions and facilities, or [2] a limited range of services. The contractor should be roughly analogous to current garage activities, with the addition of all operating supervision, employee relations, and business management. The consultant recommends that the contractor provide street and general supervision, transportation, and maintenance services in a consolidated package. This approach reduces risk as it provides the full range of tools and latitude necessary to implement and manage a complex series of inter-related functions. Separation of key functions, such as on-street transportation from vehicle maintenance, introduces counter-productive forces with resulting inefficiencies.

3. *Who should decide service levels, plan operational changes, market service, and provide rider information?*

Contractual service remains a MBTA responsibility; thus the MBTA should plan and specify these functions. Planning and marketing each need to be centralized MBTA functions to maintain consistency across the system.

To take advantage of the knowledge gained by a contractor and to facilitate a team approach with the MBTA, the contractor should routinely participate in resolving service design and operational difficulties that are daily parts of the transportation challenge. A contractor should routinely offer suggestions for improvements to designated MBTA contacts. This flexible approach still holds the contractor to specific performance criteria, but encourages continual evaluation of how the services are produced and how they might be improved. The contractor is able to do this on a micro scale and on a continuing basis. The contract's language will outline the specific division of responsibilities for contracted service to assure the overall program achieves the objectives of cost reduction and service quality.

Marketing is one area where joint efforts between the MBTA and the contractor are mutually beneficial as both the MBTA and the contractor benefit from increased ridership. Joint marketing programs - they need not be elaborate and may only entail targeting and stocking of new schedule distribution points - provide the MBTA with a new local outreach tool at little or no cost. Should there be revenue incentives for the contractor (e.g., retain all farebox revenue or share in farebox revenue gains), the contractor has an added incentive to increase ridership.

Telephone information for MBTA services is recommended to remain a centralized MBTA function, with information on all transit services provided without differentiation.

4. *Who should determine fares?*

Riders should see no difference in fares on contractually operated service compared to regular MBTA service. Therefore, the MBTA should require that the contractor charge the same fares as the MBTA. This maintains the seamless service concept.

5. *Who should be responsible for safety and training?*

The MBTA must prescribe basic requirements, approve contractor-proposed programs, and assure compliance to maintain a high minimum level of safety and performance standards. The contractor, in turn, must be responsible for training and managing employees. The MBTA may wish to provide training on system-wide issues to assure system continuity. This is typically done in the areas of fare structures and pass identification, emergency procedures, radio use, etc.

This approach places the burden of employee training and safe operation on the contractor - the party which will actually operate the vehicles. This is the only real point of control for this

issue. MBTA monitoring of on-street performance, records, safety practices, etc., would be used to assure compliance.

Safety issues related to alcohol and illegal drug use by employees are subject to FTA and MBTA policies, whichever is more stringent, including pre-employment screening, and periodic, random testing.

6. *How should on-street operations be supervised and monitored?*

There are three options:

- a. Contractor control
- b. MBTA control
- c. Contractor manages and the MBTA supports and monitors the contractor's performance.

The recommended approach is that a contractor provide and manage the service while the MBTA set policy and monitor performance. The contractor should be responsible for the primary supervision of contractor employees and operations. The MBTA should conduct spot checks, monitor fare box data, and assist in resolving daily routing and schedule issues. However, in order for the contractor to effectively supervise street operations and coordinate actions with the base management, the contractor's supervisor must have primary authority to resolve on street issues. Contracts should specify the extent of such authority and when and how issues are to be resolved.

7. *Who should provide passenger security?*

Basic police functions provided by the MBTA and local governments are anticipated to be extended to contractor-operated services. Contractors are responsible for standard security issues, such as screening applicants for criminal backgrounds and on-street service monitoring.

8. *Who should be responsible for meeting the requirements of the Americans with Disabilities Act (ADA)?*

Meeting ADA requirements should be a cooperative effort between the MBTA and a contractor. The procurement documents and contracts between the MBTA and its contractors must itemize exactly which party is responsible for what activities. At a minimum, the MBTA should provide training on the use of accessible equipment and on customer relations/passenger sensitivity in serving the physically challenged for reasons of seamless service.

Vehicles and Equipment

Basically all new vehicles and to the "maximum extent feasible" (a federal requirement), all rehabilitated buses must meet ADA requirements. Both the MBTA and the contractor

should be bound by the requirements relating to vehicles and equipment included in ADA. This approach assures that the proper equipment is available and adequately distributed throughout the bus system.

The Consultant Team recommendation is that MBTA owned new and rehabilitated vehicles be leased, at nominal charge, to contractors to the extent possible given the MBTA's own vehicle needs. Among the rehabilitated buses approximately half will have wheelchair lifts; any further needs for lift-equipped vehicles, likely to be route-specific, must be handled by the MBTA in the service and overall fleet assignment planning anticipated to take place under Phase II of this study. The MBTA may find it useful to have the contractor supply or modify some vehicles, in conjunction with the overall fleet plan, to meet ADA objectives.

Additionally, contractor-provided facilities must be accessible per general ADA regulations at a minimum, or higher standards as may be selected by the MBTA.

Complimentary Paratransit Services

The provision for complimentary paratransit services along contractor-operated routes is also a MBTA responsibility. Currently, The Ride services are offered along existing MBTA bus routes. This is anticipated to continue with the replacement of MBTA operations by contractors.

Other Risks Associated with Contractual Service

This section addresses issues related to regulatory, liability, and asset protection in the context of motor bus operations. Many of these issues are currently addressed in the MBTA's contracts under the Private Carrier and Suburban Bus Programs, and The Ride.

1. How fast should the contracting of MBTA service proceed?

The basic options faced by the MBTA are to proceed at the rate of attrition or to move faster than the rate of attrition. Bus operators comprise the largest contingent of MBTA personnel affected by competitive contracting, and thus are the focus of this discussion. The issues at hand are related to economic considerations, operational integrity during implementation, and personnel issues.

Within Attrition Rate:

MBTA has 1,686 operators, of whom 1,124 are full-time operators and 562 are part-time operators. In order to estimate future attrition, driver attrition rates over the last 5 years were examined. Driver attrition rates have varied from between 119 and 276 per year, with an average of 187. In 1991 as a cost saving tool, the MBTA promoted an early

retirement program. Therefore, the attrition rate will take several years to return to the annual average. At the start of Phase II of this study, the Consultant Team will assess driver rosters in order to better estimate attrition. Based upon the historic numbers, the MBTA could reasonably expect annual attrition in the range of 140 - 180 bus operators. Given the MBTA ratio of peak buses to drivers, this number of drivers translates into service packages of between 65 and 80 peak period buses annually, likely in contract packages of 20-40 peak period buses.

By implementing a competitive contracting program within the attrition rate, the MBTA could realize the following benefits:

- Few, if any MBTA personnel are idled, resulting in little or no "double payment" for one person to be under-productive while a contractor performs their former function.
- The transition from MBTA to contractor operations is smoothed by smaller increments of service. Fleet re-assignments, vehicle improvement programs, operator training, and final on-street transition activities are of smaller size and thus much more manageable. This incremental approach also assures staggered contract start and end dates, an important feature in stimulating and maintaining competition, and in protecting the service from disruption as the implementation coincides with MBTA's 4 mandated operator pick dates.

The incremental approach provides time for the MBTA to adjust its on-street and support services, including relocation of functions from one or several garages.

- No MBTA personnel face layoff status or unproductive assignments, protecting current employees to the maximum extent feasible.

The primary disadvantage of the attrition approach is its incrementalism. More smaller transitions will take place over a longer period of time. This extends the duration, although not necessarily the effort, MBTA will expend to implement the activities. Second, if the attrition rate is higher than forecast, the MBTA may, depending upon current extra-board and part time operator utilization, bear some additional overtime costs while awaiting a contractor start-up. Conversely, if the attrition rate is insufficient to adjust the work force by the time of contractor start-up, then new assignments (including the extra board), or consideration of layoffs is indicated.

Outside the Attrition Rate:

The Consultant Team considered several methods by which the MBTA could contract service faster than the rate driver attrition. They included layoffs, paying drivers to be on extra board, and finding other employment elsewhere within the MBTA. Each is briefly discussed below:

- Layoffs are difficult transitions for both the MBTA and its employees, and may be reflected in the quality of service provided to riders. Layoffs also entail higher payments by the MBTA for employment security insurance and cash outlays to compensate affected employees for accrued vacation time. Additionally, workers likely to be laid off will begin leaving the MBTA in search of other positions, perhaps forcing the payment of overtime to remaining employees to meet service plan requirements.

Layoffs with pay are anticipated to be financially infeasible.

- Increasing extra board assignments simply moves a person to a marginally productive position and is considered likely to result in a double financial burden, as discussed above.
- The MBTA has downsized considerably in recent years, and is anticipated to continue this trend. Other employment opportunities at the MBTA are considered limited to meet the need for re-assignment.

Recommendation of How Fast the Contracting of MBTA Service Should Proceed:

Each alternative to the employee issue involves serious tradeoffs in terms of economics, personal hardship, work force morale, operational impacts, institutional impediments, and public relations problems. However, the key criteria of economics and the MBTA's stated critical position regarding its budget must be fully considered.

The consultant recommends that the full implementation of the competitive procurement process take place over 3 to 5 years, following the rate of attrition. By coordinating implementation with attrition, the possibility of layoffs is minimized, operational integrity is maximized, and economic costs to the MBTA and taxpayers is minimized.

2. *How large should contracts be?*

The consultant considered 3 alternatives for sizing bid packages:

- Size to service groups such as express routes or rail station feeders
- One garage, including all routes to that garage, per group
- Multiple garages per group

The MBTA has a number of objectives to meet in the sizing of route packages. Packages need to be small enough to attract a large number of contractors, yet large enough to offer an economy of scale to contractors. Making several small groups enables the MBTA to create enough groups to prevent the dominance by a single carrier, thereby encouraging all qualified parties - local, regional, and national - to participate.

In keeping packaging relatively small, contracting activities are kept manageable for the MBTA to implement, while creating a large enough total number of routes/services in each package to effect an economy of scale and resultant economic benefits to the MBTA.

The Consultant Team recommends that packages be sized to service area segments in packages of 10 to 40 peak period buses at a time, largely within the MBTA attrition rate, and dependent upon operational and other needs. The objective is to proceed in a manner that maximizes cost savings, operational as well as fixed in the case of garages, in the manner that is most compatible with the ongoing provision of public transit services.

3. *How many contracts should there be?*

The issue is whether there should only be a single private carrier providing service or multiple carriers. The whole principal of saving tax funds and maintaining service quality rests on having on-going competition among several contractors. If a single provider were to control contractual service at the MBTA, the cost of service and quality of service may suffer as MBTA becomes "captive." Therefore, service segmentation through multiple contracts should be actively promoted through any number of qualified carriers. The development of route packages and subsequent phasing should take this into account. The MBTA may also consider a policy, similar to that in Colorado, that prohibits any one contractor from operating more than 50% of the services contracted, as measured in units of revenue service provided.

4. *What should the overall schedule be?*

Should there be a few, large blocks of service contracted annually or more, small blocks contracted semiannually? By releasing bid packages semi-annually, or perhaps quarterly, the competitive procurement process can better coordinate with attrition rates for two reasons. Attrition occurs throughout the year. Therefore, the transition would be smoother and more cost effective if the MBTA were to offer smaller packages of service, more frequently. In addition, predicting attrition rates is uncertain. With smaller packages the MBTA will be better able to adjust the amount of service bid to the actual attrition rate, and reap the operational and economic benefits described above, which result from this approach.

5. *Who should be responsible for revenue handling and security?*

Items to be considered under this issue include security of farebox revenues on the bus and during its transportation and processing after removal from the bus, as well as integral ties to the approach utilized to compensate the carrier for the work performed. Overall, the new electronic registering fareboxes and ancillary equipment now going into service at the MBTA alleviate most security issues.

Option 1: If a contractor retains the fare box revenue as a portion of his compensation under the contract (e.g., bid for net subsidy required for the service), there is a strong incentive for the contractor to increase ridership and protect the revenue. This

is a "win-win" situation for both parties. This approach is followed in the MBTA's Subsidized Private Carrier Service. Contractors report to the MBTA monthly on ridership, service, and revenue factors.

Option 2: Alternatively, the approach could be one based on bid of gross cost, with the farebox revenues either deposited to an MBTA account or retained by the contractor as an offset against the amount owed to him by the MBTA. In this situation, farebox security is a significant issue for the MBTA, since the funds are and remain in the public domain. An array of security measures may be taken, including use of the new MBTA fare collection equipment, overt and covert monitoring, and desk audits.

Option 3: A combination approach is to utilize option 2 as the primary method, but provide a revenue sharing incentive, by which revenue above MBTA projections is shared between the MBTA and the contractor under a pre-agreed formula. This maintains a strong incentive for the contractor to increase ridership and guard farebox revenues, while potentially providing the MBTA with additional revenues. MBTA administrative effort, however, may be substantial, especially with multiple contractors.

6. *Should a contractor be required to accept monthly passes and MBTA tokens?*

Under the Subsidized Private Carrier Service and the Suburban Bus Program, riders cannot use MBTA passes or tokens. However, because of the seamless nature of the proposed new program, all contractors are recommended to be required to accept any and all fare media used on regular MBTA service. Any revenue incentives based on farebox cash would be simply at risk for the contractor should the balance of cash v. prepaid fares change.

7. *Who should be responsible for collecting FTA Section 15 data?*

The mileage operated under contractual service remains valid for inclusion in MBTA's Section 15 report to the FTA and becomes part of the basis by which federal assistance to the MBTA is calculated. Section 15 data will be required to be reported for these services, as they currently are for the Private Carrier and Suburban Bus Programs.

Such data is also an important management tool in its own right and forms the basis for a contractor monitoring program. The Consultant Team recommends that the MBTA require a contractor to collect Section 15 data and that the MBTA use either its own or third party checkers to spot-check data coming from the contractor.

8. *What communications system should be used?*

Three options are available - a separate contractor system, the MBTA system, or a joint communications system.

The contractor has immediate responsibility in that most operational issues must be communicated between drivers, supervisors, and the base station. On the other hand, the MBTA has an interest in matters of safety, security, and a role in helping in emergencies. Given these realities, the consultant recommends a joint communications system - one that will permit the contractor and his drivers to be in direct communication by radio with the contractors base of operations. This system may be monitored by the MBTA radio control center to accomplish the MBTA communications link. The contractor may be required to supply the MBTA with the equipment to allow this monitoring.

The actual equipment used may be 2-way FM radios or cellular telephones, as appropriate to the individual contract.

9. *What, if any, additional costs will the MBTA incur?*

In implementing a competitive procurement program, administrative and monitoring expenses will increase. While hard numbers do not exist, transit properties indicate that additional administrative and monitoring costs are minimal, estimated as about 5 percent of the contract amount. The MBTA could experience a decline in some administrative and monitoring expenses, such as a reduction in the cost of providing the FTA Section 15 data. Also, the MBTA should be able to substitute much of the new contract work for work that will no longer be required. Specifically, street supervision would be the responsibility of a contractor therefore freeing MBTA supervisors to monitor contracted service. Based upon MBTA experience in administering other competitively procured service, the MBTA has a good sense of the level of effort involved. The MBTA should seek to minimize administrative and monitoring costs, while remaining consistent with quality control needs, in order to contain costs and maximize potential savings. Elaborate and expensive administrative efforts are not viewed as necessary.

Fare Structures, Collection Issues, and Contractor Inter-Relationships

Background

Several issues related to fares needed to be resolved in the development of a competitive procurement process.

A basic question was what assumptions to make regarding changes in the MBTA fare structure. Various recommendations for further changes to the MBTA fare structure and fare levels have been under discussion since the 1991 fare increase, as have alternative funding sources for the MBTA, such as dedicated fuel taxes, etc. However, because no specific proposals for fare increases or alterations to the current fare structure have been introduced to the required public participation process, it has been assumed that existing fare levels and fare structure will remain in place for the purposes of this evaluation.

Changes in the MBTA fare structure are not warranted due solely to the implementation of a contract for the provision of bus services.

Fares and the Contractor Reimbursement Basis

Fare Levels -- No Changes/Seamless Service

Many fare-related issues present themselves in considering the move to contracted operations, most of which involve the question of user convenience, and the extent to which the services are perceived as "seamless" with MBTA services. A major element of this concept, as related to revenue collection, is the extent to which passengers on a contracted service can continue to:

1. Pay the same fares they would for the same service if operated by the MBTA
2. Use MBTA tokens and passes (including monthly commuter passes as well as discounted student and senior citizen passes) in the same way in which they do today.

In short, no changes are anticipated or recommended regarding the present fare structure. Any fare structure adjustments should be on the basis of the MBTA overall plan, not on the basis of who operates a particular route.

The MBTA fare policy, as discussed above, dictates that passengers riding contracted services should *continue to pay existing fares and all fare media should continue to be accepted*. In no manner should the existence of a contract, by itself, dictate a deviation from the MBTA's established fare structure. This guideline has a number of implications for how contracts are designed, as discussed below.

Linkage to Contractor Reimbursement for Services Rendered

Contractual linkage, if any, between passenger revenues or ridership and contractor reimbursement has no bearing on the fare structure. Such mechanisms are purely financial transactions that are invisible to riders.

Advantages and disadvantages of these linkages are summarized in the following table.

Assuming there is such a linkage and it is through the cash revenues deposited into the farebox (excludes tokens and pass sales), three approaches are possible:

- The first approach involves the contractor bidding on a full net subsidy basis adjusted for all revenue passengers. With this approach bidders are given route level ridership information by fare type and each contractor bids on the service knowing that he/she would retain the cash revenues as well receive a pre-established credit for patrons using tokens and passes. Under this approach, the MBTA needs to institute an accurate method for monitoring token and pass use so that contractors can prepare their bids, bids can be accurately assessed, and

**Advantages and Disadvantages of
Revenue Linkage to Contractor Reimbursement**

	Advantages	Disadvantages
Linkage	Provides incentive for contractor performance above MBTA standards	Best used with registering fareboxes. MBTA to supply these to contractor as it equips fleets
	Links MBTA objectives of increased ridership and revenue to contractor's objectives	Requires good initial and ongoing data to allow accurate proposals and evaluate through contract period
	Burden of cash handling on contractor	
	Uniform fare collection equipment across MBTA system	
No Linkage	Requires no initial or ongoing special data	Burden of cash security remains on MBTA
	Simple to administer	MBTA may have to supply special revenue collection equipment in contractor's facilities, or pay for (through bid price or otherwise) security services during farebox handling and for cash transfer to bank
	No special fare collection necessary, except for security needs	If no GFI fareboxes, no route-based data available without manual counts

contractors can be fairly compensated. Further, MBTA should have accurate ridership and fare data by route prior to RFP release. This may not be the case.

or

- Again on a net subsidy basis of contractor reimbursement, contractor reimbursement and net subsidy may be calculated based solely on the cash received in the farebox. This approach requires that the MBTA have accurate farebox cash count for the subject services. Contractors must simply take these figures into account when calculating the net subsidy are necessary for proposers to prepare their bids and for MBTA to evaluate them.

or

- The third approach is based on total cost figure and it ignores any and all present revenues. Future increases in cash revenues, (other than those due to fare increases and similar items outside the contractor's control) however, would be shared with contractors as an incentive, according to a pre-arranged basis, e.g.

a 50-50 split. Such an arrangement could include projections for ridership growth and periodic adjustments in revenue split. While this approach avoids the issue of fare payment method, it requires accurate ridership data at a micro level, and entails significant administrative effort by the MBTA. As with the second approach, this approach diminishes the incentive for contractors to increase ridership among pass and token users.

Under the MBTA's current subsidized private carrier program, contractors keep all revenue collected. At first, contractors were guaranteed a minimum daily revenue, beyond which they kept one-half the additional farebox revenue and returned the remaining half to the MBTA. The monitoring and accounting for this procedure became so unwieldy that the MBTA now allows contractors to keep all revenue, basing the amount of their subsidy on the net cost of service. Contractors do have to submit monthly reports on ridership and revenues collected. As it stands, these data are somewhat uncertain. However, if the new recording fareboxes are used to monitor ridership, accuracy and reliability are expected to improve greatly.

Alternatively, the MBTA could select to not utilize fare revenues or ridership in the contractor reimbursement methodology, and simply request financial proposals based on total operating cost. In this case, cash fare revenues would either be [1] physically returned to the MBTA, or [2] retained by the contractor (for logistical reasons) and the banking system may credit the MBTA for the cash amounts as an offset against the contractor's invoice.

Fare Collection Equipment - General and Applicability to Contract Operations

General:

Current MBTA bus fareboxes accept tokens and coins only. Passes are shown to the driver, but usage is not recorded. To help improve revenue control and ridership data collection, the MBTA has been introducing new fare collection equipment into its bus fleet. In 1986, the Authority completed limited revenue service testing of electronic bus fareboxes which have the capability to transfer revenue and ridership data directly to a central computer database. Subsequently, the MBTA purchased GFI electronic bus fareboxes with swipe readers and "exception buttons" which automatically record special fares such as student or elderly discounted fares, and is installing them to be placed into service by September 1993. The new equipment will be maintained by the MBTA.

The January 1993 Fare Policy Statement requires that the MBTA continue to test and install new fare collection equipment on buses, trackless trolleys, and surface Green Line vehicles, and that new equipment be installed and be operational in rapid transit stations by the end of 1995.

The goals of this program are to provide better fare and ridership data, to reduce fare evasion, to allow the MBTA to make better use of passes and other pre-paid media, and to provide flexibility to allow for changes in the fare structure, use of transfers, zone fares, etc. Under consideration are two alternatives for "value based" fare collection media to be installed system turnstile or a Surface Ticket Validator (STV) which would be attached to each bus farebox.

The first alternative allows for introduction of magnetic tickets, with a transition period in which tokens and coins would still be accepted. Passengers boarding buses would insert a coin or token as they do today, or would insert a magnetic stored value ticket or pass into an STV. At the end of each day's run, information will be sent to a microprocessor system installed at each bus garage, and then transferred via radio transmission link to the central computer system to allow immediate updating of records and usage data. Installation of the STV's is recommended to occur on a garage by garage basis. Under both alternatives, tokens and cash will continue to be accepted in all bus fareboxes. A total of 1,200 STV's have been recommended for installation on MBTA buses, at a cost of \$3,000 each.

Application to Contracted Services

The conversion to a stored value ticket system will be beneficial to bus service contracting for several reasons. First, it will allow for more accurate revenue and ridership data collection, thus providing an accurate and effective tool for monitoring contractor performance.

Second, it will also allow for more flexibility in determining differential fares for privately contracted routes, with specific applicability to the Subsidized Private Carrier Service and the Suburban Bus Program, as well as other niche markets for which MBTA subsidizes the service but for which a differential fare is valid.

Finally, the stored value tickets facilitate integration of fares charged on the privately operated buses with fares from other modes. Because the STV's can be installed on any existing farebox, there should be no trouble using them on any privately owned equipment. During the transition period before STV's are installed on MBTA-owned equipment, any non-MBTA owned buses can continue to use existing fareboxes.

Conclusion

While service quality presents a number of issues, the Consultant Team concludes that the MBTA can be assured of quality service on the part of contractors. Such assurance depends on including the appropriate incentives and disincentives to influence the contractor to meet MBTA objectives. The MBTA would be the client of the carrier and thus be in a position to terminate any contract for just cause. The MBTA would also be able to assure high quality service by levying penalties for poor quality service. Such penalty clauses are common place for contractual transit service. However, there is no real shortcut for selecting the best carrier for a particular service package and proper oversight of a contractor's performance. The MBTA will need to monitor and document the service provided by its contractors.

The MBTA will actually provide many of the functions that either directly or indirectly provide customer service. In designing this program, the Consultant Team has made clear that the MBTA should maintain control of all system-wide functions from planning and marketing to setting fares and overseeing training.

As for indirect service quality issues, the MBTA can design the contractual process so that the MBTA incurs minimal risk. If a contractor fails to improve performance, the MBTA would have the option to terminate the contract. By keeping contracts relatively small with a multitude of carriers delivering service, the MBTA would have several options for finding a new carrier, even immediately, if necessary.

As evident by past revenue security problems, directly operating service does not avoid risk. In some cases risk clearly can be reduced by contracting. By designing service payment so that the contractor keeps farebox revenues, the MBTA clearly will shift such risks to the contractor. Another example involves the loss of a vehicle. If a contractor's driver totals an MBTA vehicle, the contractor's insurance would replace the equipment as opposed to existing approach of MBTA self-insurance. These same concepts apply to virtually all aspects of contracted service.

SECTION VI

ASSESSING EXISTING MBTA CONTRACTUAL SERVICE

In this section, the Consultant Team assesses both short term and medium term options for organizational changes to both the Subsidized Private Carrier Service and to the Suburban Bus Program.

A. Subsidized Private Carrier Service

The current Subsidized Private Carrier Service involves only 6 carriers and a small number of routes which have changed very little over the years of operation of this program. In every case, the program involves routes which were operated by private carriers without subsidy. However, the carriers have changed in some cases. In several cases, exclusive franchises for operation of the routes are involved, although the MBTA has been working to acquire these rights over the years, in return for a subsidy for the services, so as to increase competition. Although it is limited in its scope, and no new routes have ever been advertised under its umbrella, this program does offer a precedent for contracted services that has been successfully operating at the MBTA for over 25 years. In recent years, these services have been analyzed for potential improvements by the MBTA Advisory Board, and MBTA management has been moving toward several measures to increase the productivity of these services. As part of this study of contracting opportunities, the feasibility of changing or expanding the current program to better integrate it into new contracted services was examined.

Starting with the recommendations of the MBTA Advisory Board report, the Consultant Team examined 3 options for improving the Subsidized Private Carrier Service, including:

- No change.
- Integrate the program and others into a new "contracted services" operation covering all contracted services.
- Modify the program, without combining it into a new program.

The first option, "no change," was rejected because there are clearly ways to improve the monitoring of contract performance and to increase competition in the present program, which has changed very little over the years. In particular, the Advisory Board recommendations to apply performance standards to the existing services, and to improve marketing and service monitoring dictate that some changes to the current program administration are called for.

Nevertheless, merging the management of this program at this time into an overall "contracted services" operation was also rejected, because this program serves a different market than the standard MBTA bus services which are now candidates for contracting. Like the Interdistrict

Program, which serves communities outside the MBTA district, the Subsidized Private Carrier Service represents a means for serving a specific "niche" market that can effectively be managed outside the constraints of "seamless service" which govern the new contracting effort. The Subsidized Private Carriers all operate on the fringes of the MBTA district, using their own vehicles and setting their own fares (with MBTA permission), and there is no apparent customer dissatisfaction with the services as they operate now, and the operating costs are lower than MBTA costs for comparable routes. While several of the routes serve as feeders to MBTA transit stations (where seamless service would be desirable), others serve a town-to-town market, where issues of passes and coordination with MBTA fare media are not important. While no new services have ever been initiated under this program, it is likely that inter-suburban services may become more attractive in the future. Thus, keeping the model for services which are run independently with contractor equipment and fares is probably desirable. Finally, there are existing contracts with the current operators, which will expire on a staggered basis, making major changes to this program difficult to achieve in the short time frame dictated by the current effort.

Thus, the recommendation from Phase I of this study is to maintain the Subsidized Private Carrier Service as an independent program with its own "mission," but to modify its management in the short and medium term, as follows:

Short-Term

- Clear reporting channels for this program should be established within the operations division, in order to coordinate performance monitoring with quarterly and annual reviews of all services to allow better comparison of these services with MBTA and other contracted services.

Medium-Term

- New fare collection equipment should be required on these routes to improve performance monitoring and to allow for use of MBTA passes and tokens on those routes which feed transit or rail stations.
- There should be improved coordination of service planning and marketing between these services and general MBTA bus and rail services.
- As contracts come up for renewal, consideration should be given as to whether they should be integrated into the new contracted services program or the Suburban Bus Program, or maintained under this program.
- The MBTA should examine, as part of its ongoing bus route strategic planning whether new inter-suburban routes could effectively be run under this program.

1. The first part of the paper discusses the importance of understanding the underlying mechanisms of the observed phenomena. This is crucial for developing effective interventions and policies.

2. The second part of the paper presents a detailed analysis of the data collected from the study. The results indicate a significant correlation between the variables of interest, suggesting a causal relationship.

3. The third part of the paper discusses the implications of the findings for practice and policy. It highlights the need for further research to explore the long-term effects of the interventions and to identify the most effective strategies for implementation.

4. The fourth part of the paper concludes the study by summarizing the key findings and providing recommendations for future research. It emphasizes the importance of continued monitoring and evaluation to ensure the sustainability of the interventions.

5. The final part of the paper provides a brief overview of the study's limitations and strengths. It acknowledges the challenges faced during the data collection and analysis process and highlights the strengths of the study design and methodology.

6. The paper concludes with a statement of the author's gratitude to the funding agency and the research team. It also includes a list of references and a table of contents.

2. Suburban Bus Program

The Suburban Bus Program differs from the Subsidized Private Carrier Service, in that it actually operates as a partnership between MBTA and the towns in which it operates, with the 11 towns, not the MBTA actually contracting for the service with private carriers. The MBTA provides its subsidy (65% of the net cost of service) directly to the towns, rather than to the carriers themselves. The general mission of this program is to serve as means of cooperatively providing purely local services which generally run within a town's boundaries and do not connect with regional MBTA commuter services. In most cases, the vehicles used are minibuses or vans which are difficult to provide within the standard MBTA operating structure. The funding mechanism allows for more flexibility in designing services, and for more local control over the operators. It also lessens the degree of state subsidy from the levels required for MBTA operated services and for routes of the Subsidized Private Carrier Service.

In its 1992 report on the Subsidized Private Carrier Service in the MBTA district, the MBTA Advisory Board recommended that several of the routes now included in the Subsidized Private Carrier Service be converted to the Suburban Bus Program. These recommendations should be considered as part of ongoing quarterly and annual service planning reviews. In addition, the Advisory Board recommended that the management of this program be merged into one common department encompassing all the privately contracted services.

Using these recommendations as a starting point, the study team examined a number of options for the Suburban Bus Program, including:

- No change.
- Integrate the program and others into a new "contracted services" operation covering all contracted services.
- Modify the program without combining it into a new program.

The first option, "no change," was rejected because there are several ways to improve the marketing and administration of the present program, which have received little attention in recent years. While towns theoretically compete for funding under this program, no new programs have ever been selected in preference to existing programs. Several programs have been dropped for lack of local funding. Minimum performance standards for continuation of services or initiation of new services under this program need to be developed. Overall, a clear commitment by the MBTA to the goals of this program is needed if it is to continue as a positive means of serving intra-town transit markets or those which require non-standard vehicles.

Nevertheless, merging the management of this program at this time into an overall "contracted services" operation was also rejected, for the reason that this program, like the Interdistrict Program and the Subsidized Private Carrier Service, also serves a different market than the standard MBTA bus services which are now candidates for contracting. Again, the Suburban

Bus Program represents a means for serving a specific "niche" market that can effectively be managed outside the constraints of "seamless service" which govern the new contracting effort. Because the services generally run within one or two communities and serve as lower volume circulators or off-peak services which can use smaller vehicles, it is less important to require compatibility of the Suburban Bus Program and MBTA services in terms of vehicles, livery, or fares. Further, the contracts under this program are between MBTA and the participating towns, and the towns themselves carry out the bid and contracting process with private carriers, dictating a different type of administration within the MBTA. Thus, while enhanced coordination with other bus service planning and performance monitoring is definitely desirable, there is no clear reason to merge management of this program with the other contracted services.

Thus, the recommendation from Phase I of this study is to maintain the Suburban Bus Program as an independent program with its own "mission," but to modify its management in the short and medium term as follows:

Short-Term

- Because of its different subsidy and contract structure, this program should be kept separate from the Subsidized Private Carrier Service.
- However, performance monitoring for these services should be coordinated with quarterly and annual reviews of all services to allow better comparison of these services with MBTA and other contracted services.
- Reporting channels for MBTA staff running the program should be clarified in order to insure coordination of service planning and marketing.

Medium-Term

- Because it reduces the MBTA and state subsidy and involves local governments more actively in route planning, this program could be considered more aggressively, in conjunction with ongoing bus route strategic planning being launched at the MBTA, to see if it offers a model for new suburban services, possibly assisted by developer or employer contributions (i.e., through suburban employment center TMA's).
- If there is a continuing commitment to the program on the part of MBTA management, the level of staff support needed should be reevaluated, in order to develop a more aggressive campaign to help communities plan and run services, to market the services, and to seek new sources of funds as new clean air and suburban mobility programs are developed.

Conclusion

The Consultant Team recommends that the Subsidized Private Carrier Service be modified, without combining it into a new competitive services program. Integration into the new program was rejected because, the Subsidized Private Carrier Service represents a means for serving a specific market that can effectively be managed outside the constraints of seamless service. However, a number of short and medium term changes are warrant. These include the following: establish clear reporting channels within the MBTA, use new fare collection equipment and improve planning.

The Consultant Team also recommends that the Suburban Bus Program be modified, without being combined into a new competitive services program. Because this service generally operates within one or two communities and serving niche markets there is no real reason to integrate this service into the new program. Short and medium-term recommendations include coordination of performance monitoring, and improve internal reporting channels regarding this program.

SECTION VII

IMPLEMENTING A COMPETITIVE PROCUREMENT PROCESS

Using the Contract Document as a Management Tool

The contract documents to be used in the procurement of contract services can be used to establish the responsibilities of the contractor and the MBTA, and to:

- Encourage energetic competition in the short and long-term
- Encourage aggressive pricing by the contractors
- Allow for participation by all qualified parties
- Provide operational flexibility
- Provide for the operation of the service at or above prescribed quality levels.

These objectives are formally accomplished through the use of certain key contract clauses in the solicitation documents and the final contract. The many exact items to be considered depend on the selection of certain procedural and service design issues. The handling of this issue should generally be consistent with the corresponding provisions of the contracts for The Ride, but with modifications tailored to the needs of the bus service contracts. The overall "contract" for a given service actually consists of the procurement document, the proposer's response, any negotiated language/provisions, and a document formalizing these into one overall contract package.

Exhibit VII-1 presents optional approaches to the key procurement and contractual issues, including the recommended option. The rationale for that recommendation is discussed below. Additional clauses will be necessary depending on the exact service design, the special needs of each contract package, and MBTA policies and procedures relating to contracting for services. Two classifications are used: "Economic Items" and MBTA "Protection and Flexibility."

Economic Items

Payment Method

There are basically three options: cost + fixed fee, fixed total price, and fixed unit price. A cost per unit of service (e.g., revenue hour) provides a fixed cost basis, since MBTA controls the number of revenue units, yet still provides the MBTA with flexibility to alter service plans as necessary. This approach also applies an incentive for contractors to operate efficiently, since the MBTA pays only for actual revenue service delivered.

Exhibit VII - 1: Contracting Issues

Item	Options	Recommendations
Economic Items		
Payment method	Cost plus fixed fee Fixed unit price Fixed total price	Fixed unit price
Pricing basis	Net operating subsidy Operating cost Fully allocated cost	Net operating subsidy + any capital necessary
Penalties and incentives	Use Non-use	Use
MBTA Protection and Flexibility		
Procurement method	Request for proposals (RFP) Invitation for bids (IFP)	Request for proposals
Insurance provision	T provides Contractor provides own coverage	Contractor provides
Insurance amounts	Any reasonable amount	\$1 million minimum Maximum at \$5 million or T's current motor bus levels
Performance bond	Mandate in specifications Not include in specifications	Not include
Staging of contracts	Start-stop in coincident date Stagger start and expiration dates	Stagger start and expiration dates
Multiple contractors	No limit - 1 contractor may hold all contracts Limitation to mandate more than 1 contractor	Limitation to mandate more than 1 contractor
Termination clauses	Allow either or both parties out of contractual obligation early	T may terminate for cause at any time, for convenience with 30 days written notice. No option for contractor.
Protection of T's capital items leased to a contractor	Monitor on 100% basis Monitor based on sampling	Sampling
Supply of capital items	No provision allowing Provision allows options	Provision to allow option to MBTA
T buyout option for contractor-supplied equipment	No option T option	T option - Include buyout option for selected/major items
Independent contractor	Contractor as agent of T Contractor as independent entity	Independent entity

Exhibit VII - 1: Contracting Issues cont'd

Item	Options	Recommendations
MBTA Protection and Flexibility cont'd		
Key management personnel	No requirement T approval required	T approval required to change
Local and state franchise rights	Provide to contractor Reside at T	Reside at T
Service plan control	T control Contractor options	T control
Fare levels/Tariff schedule	T control Contractor control	T control
In house award	No - just retain services at T Yes - formally award contract	Yes
Contract length	3 year base contract with 2 optional 1 year extensions	Any combination up to FTA maximum of 5 years
Extra services	Lock contract into specified plan Allow at T's direction	Allow at T's direction

Pricing Basis

Three base options are available: net operating subsidy, operating cost, and fully allocated cost. Net operating subsidy means that bids are based on the contractors estimated cost to provide the service, less farebox revenue. The operating cost approach removes farebox revenues from the equation, and bids are based solely on the bid cost of the service; the MBTA retains the farebox revenues. A fully allocated cost basis apportions fixed cost items to the services in question: this is a very long-term approach that is usually applied only to public and semi-public agencies. The fully allocated cost basis is only required by FTA for non-profit organizations and for public agencies outside their operating areas.

The operating cost method, applied on the basis of units of service, provides an incentive for the contractor to provide good service and protect cash farebox revenues. Revenue increases due to MBTA decisions or other factors outside the contractors control (e.g., fare increase, change in service plan, etc.) are exempted. In addition, the MBTA may better stabilize its subsidy payment and the contractor has an incentive to increase ridership. A variation of this approach allows gain-sharing for increased revenues, based upon ridership and revenue forecasts.

Penalties and Incentives

Penalties are used as a negative measure to insure that the MBTA does not pay for substandard service or services not received. The penalties also to motivate a contractor to perform to the MBTA's established standards. Incentives are used to encourage above-standard performance. Both have reasonable applications to achieve the MBTA's mission of providing quality bus services.

MBTA Protection and Flexibility

Procurement Method

The two basis methods are the Invitation for Bids (IFB), by which low bid is the sole deciding factor for qualified bidders, and the Request for Proposals (RFP). The RFP method allows the MBTA to select the best operator for the service based upon a combination of qualifications, the technical proposal, and price.

Insurance Provision

The MBTA may have an opportunity to include a contractor in its self insurance, or may opt to have the contract carrier provide its own coverage. For reasons of safety for the MBTA and as an incentive for safety, risk management, and claims adjustment, the contractor should provide its own insurance coverage.

Insurance Amounts

\$1 million is considered minimum adequate liability coverage for motor bus public transit services, regardless of the size of the service block. The actual minimum acceptable to the MBTA must protect the MBTA, yet not be discriminatory against bidders. Blocks of service, each with their own coverage, provide segmentation of risk to the MBTA. High deductibles (e.g., over \$5,000) and especially self-insurance plans should be allowed, but strongly scrutinized initially for financial viability, periodically for adequate capitalization, and an escrow account established at the end of the contract term to pay any trailing or unidentified claims.

Other insurance coverage and limits are to be selected in accordance with state law, local policy, and protection of the MBTA's assets and the service overall.

Performance Bonds

The services to be covered are essentially professional services for which FTA and the Competitive Services Board recommend no performance bond. The actual protection value is considered minimal at an unnecessary cost, and the practice usually eliminates small firms and effectively all non-profit agencies from the competition. Risk may be mitigated more effectively in other manners.

Staging of Contracts

All contracts may be due at one time, or they may be staggered with different implementation and expiration dates. The staggered approach eases operational transition for the MBTA, riders, and contractor. It also allows the MBTA more control over contractors and limits the administrative tasks from peaking to high level.

Multiple Contractors

Multiple contractors encourage immediate, ongoing, and future competitiveness, as the MBTA is not dependent upon one vendor, now or in the future. Service protection is considered strong under a multiple contractor approach, as a service failure by one vendor can be covered by others. The MBTA may consider a policy that sets a maximum amount of the contracted service that any one contractor may hold (similar to the Colorado legislation of 1987).

Termination Clauses

The MBTA may opt to allow either or both parties to terminate the contract for convenience with advance written notice. The consultant suggests that only the MBTA should have this option to maximize its flexibility while maintaining pressure on the

contractor to perform up to or exceeding contractual minimums. Similarly, only the MBTA should have the ability to terminate the contract for cause.

Protection of MBTA Capital Items

A solid sampling and inspection plan provides adequate protection at a reasonable cost when performed diligently. Periodic inspections (e.g., annually or every 25,000 miles) may be utilized to detect and force contractor correction of any deferred maintenance or safety items.

Supply of Capital Items

This is an option that provides much flexibility for the MBTA, even if it is not utilized in the RFP. Its inclusion in the contract is recommended. It is exercised by negotiating the price and other terms of any desired item any time during the duration of the contract. It provides, for example, the flexibility to have the contractor provide the vehicles to convert a route with 35 or 40 foot buses to one served by a mini-bus or other alternative vehicle, should the MBTA so desire.

MBTA Buyout of Selected Capital Items

This clause allows a pre-arranged, instantaneous buyout of pre-identified capital items provided by the contractor. This is primarily a service protection method to allow the MBTA instant access to key equipment or facilities in the event of contractor default, or otherwise. No expenditure is necessary unless the clause is utilized.

Independent Contractor

The contractor is an independent business, just like other vendors. The contractor has legal requirements its manage its own work force and to conduct its business according to the law and the contract with the MBTA. Constant enforcement of this issue separates the MBTA from liability and responsibility for the contractor's personnel and business decisions, and avoids his employees being considered "defacto" MBTA personnel.

Key Management Personnel

A clause requiring prior written approval for on-site contractor personnel will protect the MBTA from "bait and switch" tactics both initially and over the term of the contractor, and to ensure that management is of a high caliber. Such a clause usually covers the key personnel at the actual site of transit operations, such as the general manager, director of maintenance, etc. Large contracts (e.g., over 50 buses) may entail inclusion of additional positions. The clause functions by having the re-assignment of any covered

position be pre-approved, and that the replacement be selected by the MBTA from a list of qualified candidates presented by the contractor.

State/Local Franchise Rights

The MBTA should retain all rights to operate any of the service that will be performed by a carrier under contract. The MBTA will grant permission to a carrier to operate under its statutory authority; however, service will remain in public domain at all times.

Service Plan Control

By this clause the MBTA explicitly maintains control over all aspects of the service plan, including routes, schedules, bus stops, days of service, type of bus utilized, etc. The contractor may not modify this without written MBTA permission.

Fare Levels/Tariff Schedule

This clause will ensure that the fare levels are firmly and irrevocably under the MBTA's control. The contractor may not charge more or less than the stated tariff.

In-House Award

This item concerns the retainage of a bid service in-house at the MBTA for any reason, including successful proposals from MBTA personnel or divisions. It is recommended that should this occur, a formal award still take place. This will then require adherence to specified standards and costs, and re-competition is required at end of the contract term. This is an excellent means to sharpen MBTA internal skills and enhance and maintain competition.

Contract Length

The contract may be for any period up to the FTA maximum of 5 years. A 3 year base contract with 2 optional 1 year extensions is recommended as it provides a reasonable period to recover the start-up costs of the MBTA and the contractor. Option years provide flexibility to the MBTA and an incentive to contractor. Additionally, 3 years is considered the maximum period of time for which fixed unit costs can be forecast with any reasonable degree of accuracy.

Extra Services

The MBTA may opt to allow the contractor to supply extra services not considered "public transit" using non-T vehicles and facilities, assuming that these do not interfere with the contractor's responsibilities to the MBTA, which are considered primary. This practice, when applicable, may allow cost sharing with other services and lessen the

direct burden on the MBTA. It is usually most applicable for express buses that are used for after-hours charters. Only non-FTA funded equipment and facilities may be used here.

Other extra services may be at the MBTA's request to meet emergency, special events, weather-related, or other needs. This is an attractive option that provides much flexibility for the MBTA. It is usually based on the fixed unit price in effect, less fixed cost items covered in initial bid for the base transit services. Items or services requiring new or additional fixed costs may be negotiated and included into the contract by addendum.

Managing a Competitive Services Program

The approach that the MBTA takes to managing a competitive services program will have a significant impact on the effectiveness of the program, and on the relationship of these services with other MBTA services and activities.

The options for the management of the program include:

1. Organize the activities under a separate MBTA unit
2. Organize the program under a unit which includes the Suburban Bus Program, the Subsidized Private Carrier Service, and perhaps the Ride
3. Retain responsibility for the services under the Operations Division
4. Retain responsibility for the services under the Operations Division, and including with it the Suburban Bus Program and the Subsidized Private Carrier Service.

The first 3 options were discarded on several grounds, in favor of the fourth option. The rationale for this are:

- Neither the function of the services nor their relationship with other MBTA services change with contract operations. Integrated, quality motor bus services still need to be provided to the public, and this is best done under the one organization responsible for coordinating all operations.
- Some of the resources of the Operations Division may be required to support the contractors on occasion, and vice versa. Examples include communications to facilitate transfers, on-street supervision, accident and incident investigation, operations planning, special events services, and emergency operations (e.g., snow plan, bus bridge around disabled rail segments, etc.).

These and other services are integral to successful bus operations. The Operations Division will be more likely to support the program effectively if they are integrally linked, including management performance reviews.

- Changes in service levels, schedules, routings, and similar recurring activities and other occasional needs can be handled more effectively under a single management structure.
- Increasing competitive contracting will not reduce the overall activities of the Operations Division. There is therefore less opportunity and rationale for "us v. them" thinking to emerge. All services are focussed on the same mission statement.
- Adding the Suburban Bus Program and the Subsidized Private Carrier Service to the Operations Division's responsibilities will increase the synergism among the programs, and lead the managers of the Division to take a broader view of these programs as a means of achieving the missions of the Division.

Commensurate with this recommendation of Option 4, the MBTA must assure that adequate staff is available to maintain and strengthen the existing Suburban Bus Program and the Subsidized Private Carrier Service, and to implement and foster the success of the anticipated competitive program. Initially, however, a task force composed of members from various MBTA functions may be desirable to initiate the contract service in the highest professional manner (and in the short time frame anticipated), then turn responsibility over to the Operations Division once the program is initiated.

Implementation

Other implementation issues are briefly outlined below:

Rate and Extent

Implementation of the competitive program is recommended to be at or near the level of attrition for potentially affected MBTA positions, of which bus operators are the largest contingent. Preliminary figures indicate a bus operator attrition rate of 100-150 persons per year, which translates to contracted service level of 20-40 peak period vehicles implemented semi-annually. The rate of contract service implementation is highly dependent on the service span (e.g., hours and days of operation), intensity (number of miles and hours of service), and operational factors (service continuity, bus availability, etc.) of the selected packages.

The overall strategy for competitive contracting should be to move in increments of geographically related services. Contract increments of 20-40 peak period buses will result in the elimination of perhaps 3 MBTA facilities over the next 2 to 5 years,

depending upon final route and route-package determinations. Staging should be integrated into the MBTA's overall management and operating strategy, and its capital program.

Rolling Stock Considerations

The basic premise of the recommendations of this project is that the services to be operated by the contractors should use buses which are as near as possible to the current plan for those services. Nevertheless, the successful transition to contractor control of MBTA buses suggests the necessity to assign either newly rehabilitated buses or newly purchased buses to contract operations.

The detailed staging of the renewal and rehabilitation plan should be reviewed in the context of providing rolling stock to contractors which is generally consistent with the MBTA's current needs and plans for the overall fleet, but which is also consistent with the need to provide the contractors with buses in which they and the MBTA both have confidence. It is assumed that no bus will be provided to a contractor unless it meets the age and condition standards for MBTA bus services. This implies that buses will be provided that are no older than 7 years, or 13 if they have been recently rehabilitated.

The exact schedule for delivery of the new and rehabilitated vehicles is now being finalized to the necessary level of detail by the MBTA for general fleet planning purposes. This examination will be directly applicable to the implementation of the competitive approach suggested in this report.

The MBTA should consider near and long term strategies, consistent with an overall capital plan considering:

- Bus assignment needs, including wheelchair accessibility, air conditioning, and other special equipment, to meet overall MBTA fleet distribution needs.
- Provision of transition contract for the carrier to provide for major repairs, and perhaps rehabilitate selected buses.
- Assignment of newly purchased or recently rehabilitated buses to the contractor.
- The potential to have contractors provide selected rolling stock is suggested to be considered on a long-term, integrated basis in order to achieve maximum economies and assist the MBTA meet its fleet requirements.

Garage Needs

Dependent upon the final strategies selected in Phase II of this study, combined with the bid results of the proposed near-term contracting activity, the MBTA will have the opportunity to review its garage needs in a new light.

In the near term, relocation of certain functions and fleet assignments may be necessary should the MBTA withdraw from a current garage location (either because a contractor will utilize it, or because it will be completely idled). At a minimum, personnel and space planning will likely be necessary to relocate some functions.

A long term examination of the garage plan is anticipated to be valid after the first 2-4 segments of contracted services are implemented. This item may be anticipated now and included in appropriate budgets, FTA grant requests, and management plans.

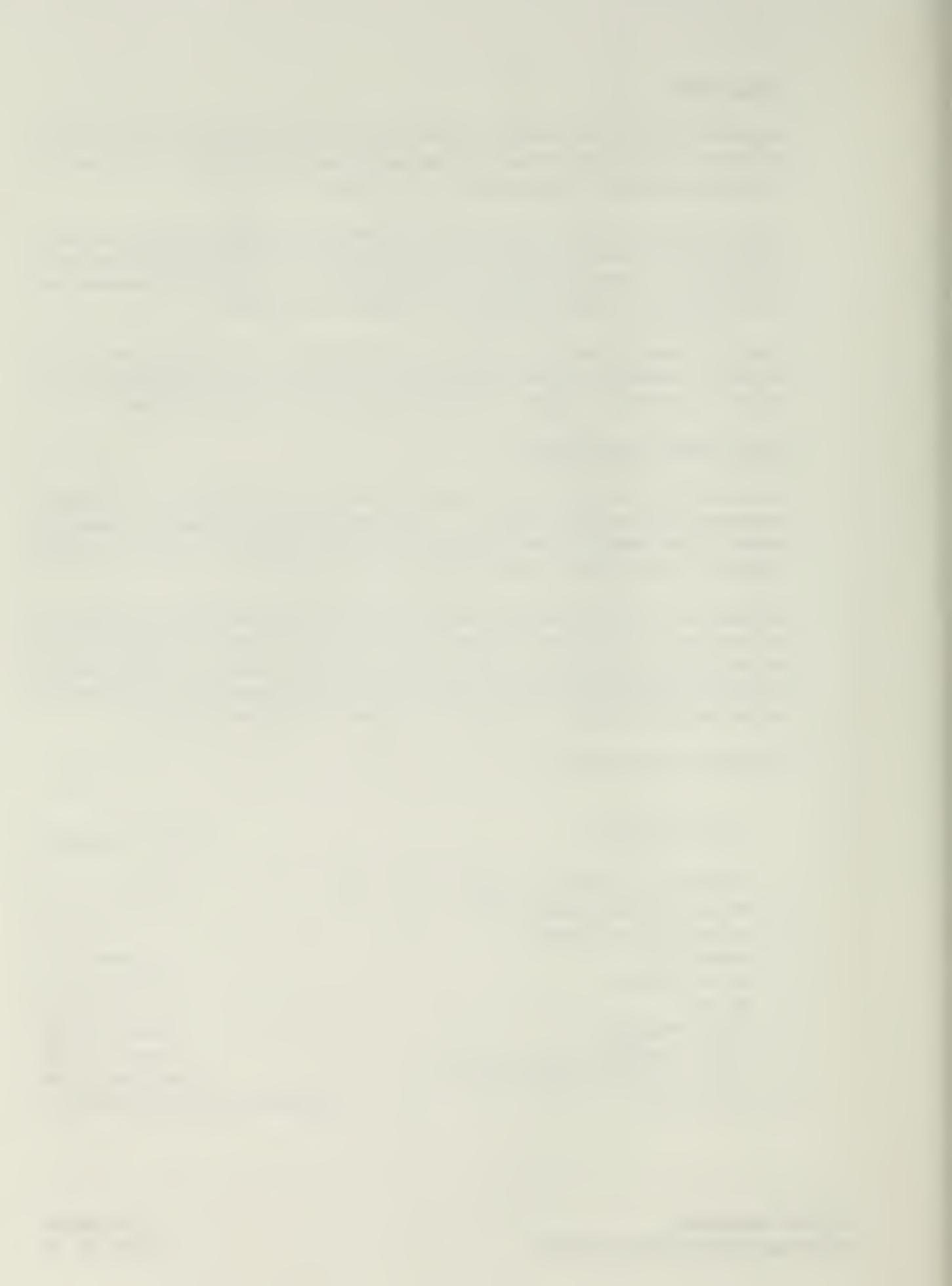
Initial Implementation Schedule

The schedule for the first stage of contracting should be to implement the change in connection with the March 1994 "pick". It is not thought to be feasible to make the necessary operational plans and adjustments, nor to allow attrition to reduce the existing workforce to avoid adverse financial affects, prior to this time.

The schedule of activities that must be completed prior to implementation is dictated by a combination of the shortest reasonable time for the MBTA to perform detailed planning and implement the first stage, adequate time for the private sector to develop effective competitive proposals, and adequate time for the selected contractor(s) to implement its services and for the MBTA to transition to the new provider arrangements.

The outline of the schedule is:

<u>Item/Work Task</u>	<u>Estimated End Date</u>
1. Finalize route selection and prepare new run cuts	July/August 1993
2. Develop RFP and contract draft	July/Aug 1993
3. Request letters of interest	July 1993
4. Release RFP	September 1993
5. Pre bid meeting	September 1993
6. Bids due	November 1993
7. Select contractor(s)	December 1993
8. Finalize contracts	December 1993
9. Carriers prepare for implementation	January-March 1994
10. Start service	Effective date of 1994 Spring pick



The MBTA should develop a detailed implementation plan to achieve this schedule. Successful implementation will require a wide range of skilled staff members from a variety of fields: legal, labor relations, planning, scheduling, operations, maintenance, and contract administration. These resources must be well informed and immediately available to assist the effort, especially prior to September 1.

SECTION VIII

PHASE I RECOMMENDATIONS

The premise that the MBTA can achieve significant savings is borne out by this analysis. The following recommendations summarize the basis on which the proposed competitive program may be implemented.

1. The bus services of the MBTA which offer the best prospects for competitive contract operations through the proposed program are those that connect suburban communities with rapid transit and commuter rail stations, and those express services with high peak to base ratios.
2. The most cost effective means of achieving cost savings is to contract for these services in stages that are paced to correspond to the rate of attrition.
3. Contracting for services in modules of 20 to 40 buses will assure the most effective program over the long term.
4. In developing bid packages, the MBTA should focus on garages, certain rail stations, and express services. Additional examination indicates that the services operated from the Lynn, Quincy and Albany Street garages, 300 and 400 series express routes, and routes serving the Salem, Quincy Center, Lynn, and Haymarket rail stations offer the best opportunity for substantial cost savings, consistent with all other criteria.
5. The MBTA should operate Blue Line "shadow service" with its own personnel. Blue Line shadow service is anticipated to operate between spring 1994 and spring 1995. Operating this service permits shifting of MBTA operators to this new service while giving attrition time to reduce the MBTA work force. When the Blue Line shadow service terminates, the remaining Lynn routes can be contracted for or transferred to another facility, and the garage closed.
6. Sequencing the contracts in modules of routes that result in the elimination of some the MBTA's operating facilities in stages will achieve reductions in the fixed costs of the system through the gradual elimination of some MBTA facilities. As the packages of routes operating out of a MBTA facility are contracted out, the facility should be converted to other MBTA uses, made available to the contractors, or disposed of.
7. After meeting MBTA essential needs, new or rehabilitated buses should be provided by the MBTA to the contractors. Using MBTA rolling stock will save cost. The use of new or rehabilitated buses will encourage bidders and avoid potential conflicts over equipment condition. The equipment should include electronic fare boxes and related equipment necessary to retrieve and report operating statistics and revenue.

8. Contractors should maintain the vehicles they operate. Contractors will be held accountable for maintenance standards, and need direct control over maintenance of the buses.
9. The decision as to whether the MBTA or the contractor should provide the operating base for each block of contracted routes should be made on economic and practical grounds. Such considerations should include transferring MBTA shop equipment and tools to a contractor.
10. The MBTA should strive for "seamless" service, and should adopt a number of strategies that assure that any changes in the organization operating the services do not have any adverse impact on the riders.
11. The MBTA should prescribe the hours and days of services, routes, and schedules to be operated by the contractor, the fare structure, and service quality requirements
12. The risks associated with contracting for existing bus services can be mitigated through a number of steps including the design and selection of the services to be contracted, the method of overseeing the contract carriers, and the specific requirements of the contract document.
13. The MBTA should eventually manage contracted services through the MBTA's Operations Division. To successfully manage such service, Operation Division management must be evaluated on how well contractual services perform. A task force may be utilized to plan and implement the initial service blocks, bringing the best MBTA expertise to the project and assuring the best start possible. Ongoing responsibilities would then be vested in the Operations Division.
14. The current Suburban Bus Program and the Subsidized Private Carrier Service are compatible with contracting the existing fixed route systems, and the policies and management of the programs should be integrated and coordinated.
15. The MBTA should continue to provide system-wide support activities, such as planning, scheduling, marketing, public relationships, and monitoring.
16. The MBTA should encourage broad participation by transit organizations in competing for these contracts, including private carriers, non-profit providers, other transit organizations, and groups of MBTA employees.

costs, and some are 77% below MBTA's costs. Stated another way, the highest per revenue hour cost, Chicago at \$64.22, is still one third below MBTA costs.

Comparison with MBTA Contracted Services

An examination of the 1992 MBTA Advisory Board report entitled "Private Carrier Bus Service in the MBTA District" was made. Five routes contracted by the MBTA under the Private Carrier Program were compared to groupings of 18 similar MBTA routes. The lowest cost MBTA route was more expensive than the highest cost Private Carrier route. On an overall cost per mile basis, the competitively procured services cost 60 percent less than the MBTA's directly operated routes.

The finding from these examinations is that MBTA motor bus costs are substantially higher than:

- Directly operated services of other similar transit agencies,
- The price paid by other similar transit agencies to buy transit services, and
- The market cost of bus services in the Boston area.

In the course of the investigation, no compelling reasons related to unique environmental, operating, maintenance or other conditions were identified to explain these cost differentials. While the MBTA may experience difficulties unique to Boston, no one factor or group of factors is believed to be accountable for the large operating cost differences found in the examination. In short, the MBTA motor bus service is simply expensive.

Examination of MBTA Costs by Route Groupings

MBTA motor bus services were examined on an economic basis using operating costs and service plan parameters from MBTA records. Three increasingly accurate cost models were developed to assist in this process. The first, MBTA's internal model, was used to perform a preliminary examination of bus services by route. The second model is a factored model used to test the results of the first model. The third model was developed to meet FTA guidelines. It uses 3 variables: miles, hours, and a combination of both to attribute costs. This last model is considered the most accurate predictor of MBTA bus costs to date, and was applied to all MBTA routes. A further, very detailed refinement of the model is necessary prior to precisely estimating costs by individual route.

Application of the cost model to MBTA bus services was performed in 8 ways, plus by each of 8 garages, and for routes serving each of 9 different rail stations. This examination was intended to identify routes that:

- Indicate a significant cost reduction is possible through a competitive contracting approach, and
- Provide insight into the operational feasibility of groups of routes.

The findings of the modeling exercise are:

- MBTA bus services experience costs that are approximately 60% attributable to bus operations, 20% to bus maintenance, and 20% to general and administrative functions. This distribution is believed consistent with similar transit agencies, indicating that there is no one single or group of factors that drive MBTA costs unduly.



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